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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—9TH YEAR. SYDNEY: SATURDAY, JULY 15, 1922. No. 3.

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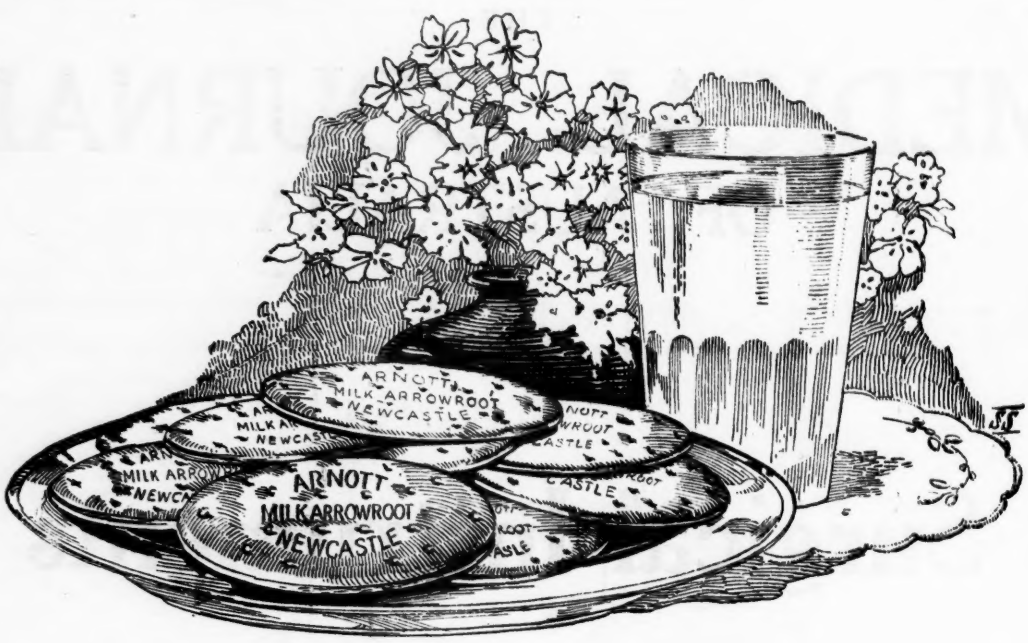

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THE NEED FOR ANTE-NATAL CLINICS.[1]

BY R. MARSHALL ALLAN, M.C., M.D. (EDIN.), F.R.C.S. (ED.),
Honorary Physician, Lady Bowen Hospital; Assistant Gynæcologist, Brisbane General Hospital.

PREVENTIVE obstetrics embraces the supervision and anticipation of all complications of pregnancy and labour and the maintenence of a healthy mother and child. At present how many women come through the strain with unimpaired physique? Pregnancy is a period of stress and strain when every maternal organ is tested to the uttermost. It should be our aim to insure that women enter this marathon of endurance with their bodily functions working properly and maintained at this level for the whole nine months.

It is surprising how modern is this conception of the rôle of maternity hospitals and obstetric physicians in general. Until the present century hospital committees considered they had done their duty when they had looked after the woman during her labour and for a short period afterwards. It never occurred to them that a maternity hospital was also a place for sick, pregnant women who should be cured and sent out well and, what is even more important, still pregnant.

Edinburgh can justly claim to have founded the ante-natal clinic system. The late J. W. Ballantyne began in 1901 with a single bed for pregnant women. This was soon increased to a ward of four beds. In addition, pregnant patients were encouraged to report to the hospital for supervision, whilst specially trained nurses were sent out to visit expectant mothers. The nurses were given printed forms showing the chief danger signals and were encouraged to fill them in. Gradually the hospital clinic was linked up with the municipal maternity and child welfare schemes and finally the treatment of venereal diseases was added to its duties. The main centre of all these activities was, however, the pre-maternity ward. In England the hospitals seem rather to have concentrated on the ante-natal clinic as the foundation of the department. But although much can be done in the clinic regarding the prevention and detection of dangerous symptoms, the ward is essential for the appropriate treatment. The commencement of the system in the United States of America was an extensive visiting of patients by district nurses in Boston. This has expanded, until at present a Bill is before Congress providing for a national scheme of district nurses, ante-natal clinics and pre-maternity wards. In Australia, the work is still in its infancy. However, a fine start has been made in Sydney, thanks to the strenuous advocacy of Fourness Barrington. His retiring presidential

[1] Read at a meeting of the Queensland Branch of the British Medical Association on May 5, 1922.

address, recently published in THE MEDICAL JOURNAL OF AUSTRALIA, is worthy of careful perusal by all interested in obstetrics. Unfortunately, this paper can only be a review, as we have so far no definite ante-natal work in Brisbane. Our maternity hospital is totally inadequate for the calls made on it and the General Hospital has to receive many patients who should never be there. With the imminent reconstruction of the Lady Bowen Hospital a chance will be given to commence this important work and it will devolve on the staff to see that this is done.

The most obvious advantages to be gained by such a clinic are:

(*a*) Exact knowledge beforehand of the relation of the fœtal head to the pelvic brim.

(*b*) The correction of mal-presentations and positions.

(*c*) The prevention, alleviation and cure of minor ailments, as constipation, frequency of micturition, varicose veins and hæmorrhoids, cramps, heart-burn and acidity, dental caries.

(*d*) The investigation of the heart and the effect of pregnancy on the various cardiac lesions.

(*e*) The examination of the urine and the detection and treatment of the severe danger signals of toxæmia.

(*f*) The early diagnosis and treatment of hæmorrhage.

(*g*) The more accurate estimation of the date of delivery.

(*h*) The estimation of fœtal health and disease.

(*i*) Early and thorough treatment of venereal diseases.

What an advantage it would be to a maternity hospital to receive a patient from the ante-natal clinic with an accurate history of her pregnancy. There would be an immense gain in the greater certainty of diagnosis, the early recognition of dangerous signs and the consequent rational choice of treatment, with a lessened maternal and fœtal mortality and morbidity. The patient with hæmorrhage would be seen before she was weakened from excessive loss of blood and unable to withstand extensive operative procedures. Induction of labour for contracted pelvis at the correct time would be a more useful procedure than the emergency Cæsarean section for the same condition when neglected.

Ballantyne was firmly convinced that a neo-natal department is inseparable from the ante-natal. The latter lessens the risks of premature birth and makes it more likely that those born alive will continue to live. But it will not cater for those born defective or premature nor for those conditions, such as icterus and melæna, about whose causation and effective treatment much has yet to be investigated. In theory, the doctor and nurse look after the infant during its first four weeks, but their interest frequently flags. The infant falls between two stools; it has left the maternity hospital and is too young for the children's hospital. The premature infant requires special care, particularly with regard to its problems of temperature regulation and feeding. For these reasons it would be better to form a neo-natal annexe to the maternity hospital, with a special staff and appliances. It would be for infants up to one month and for all premature infants until one month after full term.

The main problem would concern the mothers. It is essential that they have free access to the ward and be instructed how to look after their children. They could hardly be expected to attend daily from homes in distant suburbs and at considerable expense to themselves. They would need to be kept on in the maternity wards and perhaps could be given light work to occupy themselves and also to assist the hospital.

An essential adjunct to either ante- or neo-natal departments must be a well-equipped laboratory under the direction of an expert in the pathology of these conditions.

All this means money and the public will have to be informed that the standard of fees is inadequate and largely responsible for the present state of affairs. Under existing conditions the doctor is often excluded from the case until the onset of labour. If conscientious he will examine the urine at intervals and make at least one thorough examination of the patient; but women sometimes object to this. They may refuse to pay extra for visits during pregnancy, but in most cases an explanation will make them see our point of view. Even if no extra payment results, one has at least gained information which will prevent many an anxious moment at the labour. The old confinement fee must disappear and a composite one for attendance during pregnancy, labour and the puerperium take its place. I am thoroughly in accord with the suggestion of Barrington that the Federal maternity bonus should be used to assist maternity hospitals. Failing this, I can see no objection to the British scheme whereby a definite amount is deducted from each bonus paid to hospital patients and is paid by the Government direct to the hospital concerned.

Preventive medicine is coming into prominence at last and the ante-natal clinic is one of the most important branches. The paraphrase of Professor Bar, of Paris, sums up the situation: *"Fœtus sanus in matre sana."* We obstetricians should ever keep this before us.

SOME ASPECTS OF PUERPERAL MORTALITY AND MORBIDITY.[1]

BY E. S. MEYERS, M.B. (SYDNEY),
Honorary Assistant Surgeon, Brisbane General Hospital.

IN order to present to you the subject matter of my paper I intend to discuss the *dramatis personæ* and the acts and scenes of a play that is as old as man, of which the audiences never tire, where comedy happily prevails and tragedy is seldom seen.

Without further preample, let me make some comment on the part played by the doctor, nurse and patient and the circumstances and conditions in which they may be placed.

As regards the doctor, you have all, no doubt, read the excellent address of Dr. Fourness Barrington, recently delivered at the New South Wales Branch.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on May 5, 1922.

If his wise recommendations are adopted, they must go far towards the improvement of the knowledge and proficiency in obstetrics of young graduates. Each one of us realizes how meagre our knowledge was on graduating and such lack of knowledge must be considered as a factor contributing to puerperal mortality. It was possible for a student (at any rate in 1914) to complete his training without having seen forceps applied.

The Nurse in Obstetrics.

I would ask you now to consider another phase of the question and do so with some trepidation. Is the general practitioner, as he exists at present, the best person to look after the parturient woman? In these days, when the expenses of living are high, the practitioner has to do more work than formerly to make ends meet and in consequence much of the work is too hurried.

Again, practitioners have to keep anæsthetic appointments, often have to hurry to urgent cases and to attend to social duties.

Would some other organization then be better? This is a nice subject, too, for the student in political economy in medicine.

If the standard of obstetric nurses were raised, say, to that of students of massage, whereby greater knowledge of obstetrics was obtained and also a knowledge of administration of anæsthetics, one would imagine that if two such nurses were sent to every case, they could manage all normal labours, that is to say, 90% of all labours. It is quite probable that these women would not be submitted to any vaginal examination. The remaining 10% could be looked after by specially trained surgeon obstetricians (yes, even another specialist!), whose duty it would also be to do the pre-maternity work.

Such a state of affairs may be tending towards the impracticable, but must be considered in any study of prevention of puerperal mortality.

This brings me to the part played by the obstetric nurses and there is just one statement I would like to make; it is that many of the so-called morning nurses are a menace to the community, not for the reason that they are morning nurses, but because many of them have become feeble, careless and dirty and are incapable of carrying out their duties. At the recent Congress one member stated that in his district nine puerperal deaths were traced to one nurse.

Now for a consideration of the patient and her surroundings. In all modern text-books much space is devoted to descriptions of methods of palpation and pelvimetry, insistence being given to the value of such methods in obstetric practice. I would ask of you an expression of opinion as to the extent to which you employ these methods in your practice. Personally, I regret to say that I have not derived much value therefrom. When the Lady Bowen Hospital institutes post-graduate courses, I shall gladly attend a course of instruction in palpation and pelvimetry.

As regards vaginal examination, I feel that under existing circumstances it is the practitioner's best aid to diagnosis and progress. While it is a counsel of perfection that as few of these examinations as possible should be made, it will continue to be much used. Furthermore, I do not see how it will be possible for the present to obviate the necessity for nurses to make vaginal examinations, even though such practice is wrong in principle.

Pelvic Dystochia.

I would now like to draw your attention to what I personally feel is the greatest bugbear of midwifery, *viz.*, relative disproportion between the size of the fœtal head and the hard or soft parts of the mother and minor degrees of the pelvic contraction.

To me the difficulty of diagnosis in many cases seems well nigh insuperable and often it is only when labour is far advanced that the condition is discovered. The difficulties of diagnosis have been brought out in recent articles, correspondence and book reviews in THE MEDICAL JOURNAL OF AUSTRALIA and often the ideas expressed are very conflicting. For example, in a discussion on the induction of premature labour, Dr. Felix Meyer is reported to have said that the induction of premature labour is not a very useful procedure before the thirty-fifth or thirty-sixth week, yet, on the other hand, we read in a review of Jellett's "Manual of Midwifery": "It is useless to induce labour after the thirty-sixth week" as from that date there is a little or no increase in the size of the fœtal head. Who has not shivered on a cold winter's night trying to decide between the Scylla of untimely interference and the Charybdis of masterly inactivity? There is a time when one feels inclined to scoff at platitudes and to remember the saying of a wise old obstetrician that a fœtus is merely a foreign body and you have to get it out somehow.

The practice I adopt in these cases is as follows: I decide to the best of my ability by examination before labour has commenced, if all is normal. When there is delay a vaginal examination is made under anæsthesia to ascertain if the presentation is normal. If so and it seems likely that the head will come through, then forceps are applied. If there is advance after moderate traction, delivery is completed. Should I decide after strong traction that the head will not advance without the exertion of such an amount of force as is likely to injure the mother and child, Cæsarean section is either performed or recommended. I have seen so many human wrecks in midwifery practice that I am disinclined to use undue force. It seems reasonable to suppose that, even in this late stage of labour, there will be less risk of death from Cæsarean section than from the laceration and consequent devitalization of tissues, with ensuing sepsis following on severe forceps delivery, to say nothing of future morbidity. Personally I consider timely Cæsarean section to be a factor tending to reduce mortality and morbidity. During the last few years I have been associated in the performance of eight Cæsarean sections for the following conditions: malposition of uterus following ventral fixation, eclampsia in a primipara not in labour, central *placenta prævia*, rigidity of the cervix, minor degree of pelvic contractions, large fibroids. Several of these patients were well advanced in labour. The ma-

ternal mortality was nil and only one baby lost and that was barely viable.

Anæsthesia in Labour.

I would like now to refer briefly to anæsthetics. I contend that in all cases requiring the application of the forceps a second practitioner should be present to administer the anæsthetic. The main reason why this practice is not universally followed is that expense is incurred. I feel that the economic side of the question largely enters into the matter under discussion. In like manner I feel that the doctor should always have two assistants. The difficulty of delivering a woman in Walcher's position, aided by one assistant and the light of a kerosene lamp, is familiar to all. I am sure that working under such difficulty must help to explain at least one of the eighty-five deaths of mothers in child-birth that occurred in Queensland in 1920.

There is a further point in connexion with anæsthetics. For a long time I have felt in difficult forceps cases, etc., that the prolonged administration of chloroform must be a contributing factor in maternal mortality; it was interesting to read the following statement in Sir James McKenzie's article on "Heart Disease and Pregnancy" (*The Lancet*, 1921): "The evidence of hypertrophy of the left ventricle in pregnancy has chiefly been based on theoretical grounds and some very imperfect *post mortem* examinations" and that "the safety of chloroform anæsthesia during pregnancy has been attributed to the same circumstance. No evidence of hypertrophy could be perceived." The anæsthetic of choice for such cases, in my opinion, should be ether.

Puerperal Prophylaxis.

This brings me to the puerperium. In all cases where there has been prolonged instrumentation or manipulation I give the patient a prophylactic dose of anti-streptococcal serum, with the object of establishing active immunity. As regards the surroundings of the patient, I feel that poverty and dirt (and both are often with us) contribute their share in increasing mortality and morbidity. It seems to me that much more education of the public is required and that there is need for a central charity organization with which medical men could easily cooperate.

Quite recently I came across a mother with two children, aged five years and three years, wandering round Wickham Terrace in order to collect money to provide her with shelter. She was the wife of a returned soldier and was six months pregnant with a third child. A doctor's nurse had unsuccessfully attempted to have the woman dealt with by some charity organization.

I have little further to add to what to many of you must seem a series of platitudes.

I recently examined a member of the Defence Force and asked why he was being examined. He said he was proceeding to Sydney to do a refresher course in musketry. Has one ever heard of provision by the State being made for the nurses and doctors to do refresher courses in midwifery? Comment is unnecessary; but what a chance for a Bernard Shaw!

Let us hope that the general practitioner is going to receive more aid than in the past from existing institutions. We look to the Queensland Branch of the British Medical Association and the staff of the Lady Bowen Hospital to assist us in our attempts to reduce the maternal mortality and to provide in Brisbane an obstetric hospital as well equipped as one that is the ideal of Dr. Fourness Barrington.

DRUG TREATMENT IN OBSTETRICS.[1]

BY L. P. WINTERBOTHAM, M.B., B.S. (MELB.),
Honorary Surgeon, Mater Misericordiæ Hospital, Brisbane.

I THINK the best way to deal with this subject is to take separately the more common conditions that require treatment by drugs during the course of pregnancy.

CONDITIONS REQUIRING TREATMENT.

Threatened Miscarriage.

When dealing with a woman who has previously had one or more abortions, it is wiser to endeavour to prevent any recurrence of the trouble by putting her on 0.6 gramme or less of potassium chlorate three time a day and to continue this drug throughout pregnancy. At the same time, any exciting cause that can be discovered, should be treated. If the uterus is actually threatening to empty itself, sedative drugs, such as opium or viburnum, should be pushed. Small tonic doses of ergot are also helpful.

Vomiting.

Drug treatment is very unsatisfactory. Cerium oxalate (0.6 gramme) and bismuth carbonate (1.8 grammes) are sometimes effective; but so are a number of other drugs and none can be relied on. For pernicious vomiting, thyreoid extract (0.3 gramme three times a day) and glucose with alkalies should be tried.

Constipation.

Only mild laxatives may be used. Strong purgatives may induce an abortion.

Pruritus.

Pruritus is sometimes distressing and usually obstinate. Nerve sedatives should be given if the patient is excitable. If the trouble is due to an irritating vaginal discharge, this should be dealt with by an alkaline douche and "Silvol" suppositories or the application to the vaginal walls of "Silvol solution" (20% or weaker). Hot "Sitz" baths, local sponging with *liquor carbonis detergens* (six grammes to the litre) or the local application of ointments containing cocaine or menthol or calamine give at any rate temporary relief.

Pyelitis.

If this has occurred previously to pregnancy a prophylactic dose of hexamine (0.3 gramme three times a day) is stated to prevent its recurrence. If it should occur during pregnancy, the renal system should be flushed with copious draughts of water

[1] Read at a meeting of the Queensland Branch of the British Medical Association on May 5, 1922.

and alkalies given freely. When the acute symptoms subside, hexamine in the usual acid mixture should be given.

Albuminuria.

The treatment of albuminuria varies according to its cause. I shall deal here only with that form due to pregnancy. Diuretics and diaphoretics are indicated. Thyreoid extract has been advised, but beyond its general action it is doubtful if any drug is of much service.

If in spite of dietetic and other care a patient with albuminuria should develope symptoms of threatened eclampsia (partial suppression of urine, headache, vomiting and failing vision) a sedative is needed at once. Morphine should be given in 0.015 gramme or larger doses, in order that external stimuli may be as far as possible prevented from precipitating a convulsion. It should be repeated as often as is necessary to keep the patient under its influence till labour is completed. Veratrone should be given also in order to diminish nervous excitability and pulse-rate. Doses of from 0.3 mil to 0.6 mil (repeated if necessary) will be found very effective in stopping convulsions.

DRUGS.

As regard to drugs used during labour, the following are the more important:

Chloroform.

Chloroform can be used either for anæsthesia or analgesia. For the former purpose full anæsthesia should be used in all obstetric operations. A partial degree is worse than useless; it renders the patient quite unmanageable and asepsis becomes correspondingly impossible. On account of its stimulating property, ether should be used if there are symptoms of shock or collapse, but only once have I seen ill-results follow prolonged chloroform administration; in this case recovery was prompt and remarkable after the giving of glucose.

As an analgesic chloroform should be used in a normal case only during the height of the second stage. Its effect on the uterus is, however, also a sedative one and the pains lose both force and frequency and require an injection of pituitrin (0.5 cubic centimetre) to keep them up to their former pitch. Complete anæsthesia stops all contractions and necessitates an artificial delivery. Chloroform is also useful in the first stage, when one finds a hard, rigid and tender cervix associated with ineffective colicky contractions of the uterus.

Antiseptics.

These I would dismiss without further comment, except to say that I have found a one in four eusol solution of considerable help in any intra-uterine or vaginal infection. Perineal and vaginal lacerations heal much better when it is used.

Morphine.

Morphine is of great service in cases of prolonged labour as a sedative. It should be given in 0.015 gramme doses, when the patient is showing signs of being worn out; the dose can be repeated if necessary. As children are peculiarly susceptible to its action and as, in addition, there may be an individual idiosyncrasy, it should not be given within four hours of the calculated time of delivery. Even then an occasional baby will be drowsy and semi-comatose and may require the assistance of artificial respiratory methods.

It is also of service in the first stage, when one finds a painful, rigid cervix with reflex inhibition of the uterine contractions.

Morphine and Scopolamine.

Morphine and scopolamine, in doses of 0.01 gramme and 0.4 milligramme respectively, are used in combination to produce the so-called "twilight sleep." It does not, however, seem to have found general favour in Europe or America and requires a specially quiet delivery room and the constant presence of the medical attendant after it has been given. It frequently produces marked mental excitement, with a varying degree of amnesia, and the patient may be uncontrollable and will not listen to reason. Law suits have in some cases been instituted on account of various alleged ill after-effects.

Pituitrin.

Pituitrin has been of great assistance in midwifery and has rendered unnecessary the use of forceps on numerous occasions. Its use must not, however, be abused and it should never be given until the cervix is fully dilated and the medical attendant is satisfied that there is no mechanical obstruction to the delivery. The object aimed at should be to stimulate a lazy uterus, but if the woman is tired out, a hypnotic should be given. This would apply more to primiparæ. A good hypnotic is tincture of opium (1.2 mils), chloral hydrate (1.2 grammes) and potassium bromide (1.2 grammes).

Occasionally a patient is seen on whom the pituitary extract has no effect. Why, I do not know. It is best given in 0.5 cubic centimetre doses, repeated once after twenty minutes if necessary. I have been told that some medical men will not give it before delivery unless forced to, on the supposition that there is a subsequent relaxation of the uterus, tending to bring on a *post partum* hæmorrhage. This has never been my experience and the only untoward result I have experienced is that the membranes often get nipped by the tightly contracting uterus, necessitating a short wait for it to relax. The placenta usually follows quickly on the birth of the child, but even in cases of adherent placenta I have had no unusual difficulty in its manual removal.

Ergot.

Ergot has, I think, been largely replaced by pituitrin, but it is useful in 1.75 mil to 3.5 mil doses in cases of *post partum* hæmorrhage or can be given hypodermically under aseptic precautions. It is actually of more use as a prophylactic against hæmorrhage than as a treatment for it and should be given to women with a history of previous after hæmorrhage or in those with a prolonged second stage due to uterine inertia, where a *post partum* hæmorrhage can be to some extent expected.

A NOTE ON SOUR MILK, WITH A REFERENCE TO "RUSSIAN CULTURE."[1]

By FRANK TIDSWELL, M.B., CH.M. (SYD.), D.P.H. (CAMB.),
Honorary Pathologist, Royal Alexandra Hospital for Children, Sydney.

THE LATE M. ELIE METCHNIKOFF, of the Institut Pasteur, Paris, regarded the large intestine of man as a superfluity: a disharmonious remnant in our anatomy. Whatever value it might have in some other animals, he held that in man it was not only useless, but dangerous, as affording a place in which putrefactive microbes flourished and from which their noxious products were absorbed, to the continuous poisoning of our systems and the shortening of our lives. In support of his views he cited cases of its surgical elimination with benefit to the patient and sought for some less drastic means of relieving the body of intestinal putrefaction and its effects. He tried and discarded medicinal means as being ineffectual and pitched upon sour milk as a satisfactory agent for the purpose. He seems to have been led to this selection by the fact that such milks had been used from time immemorial amongst certain people living in the "Near East" (under the names of *"Prostowacha," "Varenetz"* and *"Koumiss"* in Russia, *"Kephir"* in the Caucasus, *"Yahourth"* in Bulgaria, *"Leben"* in Egypt, etc.) and that amongst such people there were many centenarians, due, he suggested, to the prevention of intestinal putrefaction by the sour milk. Certainly the use of whey or butter milk was not unknown amongst us before Metchnikoff, but it was apparently his advocacy which led to sour milk being regarded in the light of a medicament.

The fact of intestinal putrefaction may be admitted; we have heard a great deal in recent years about intestinal intoxication. I have never been able personally to crystallize the data on the subject in a way which affords me a clear-cut view of it and so I confess my inability to assess its significance. However, our modern views tend to ascribe certain maladies to absorbed pathogenetic toxins and the intestine is held to be a source of them no less than the teeth, tonsils and nasal spaces. Putrefactive toxins may play a similar part and even, as Metchnikoff held, have some influence on longevity. The idea is not to be ignored.

Following on Metchnikoff's pronouncement we have had placed at our disposal various tablets and powders which professed to supply the means of making the sour milk prescribed by him and I expect at one time or another you have had experience of them. Quite recently there has been an extensive popular revival of his treatment amongst us, the material used being what is called "Russian Culture." One was naturally curious to know what all the fuss was about and I took opportunities which offered of examining the material with a view to getting some precise idea of what so many of our fellow citizens were dosing themselves with. The results of my modest observations I lay before you to-day, but in order to appreciate the situation it is necessary in the first instance to clarify the term sour milk.

We are all familiar with the souring of milk and with the fact that it depends on the production of lactic acid by microbic fermentation of the milk sugar or lactose. The curdling which follows is usually due to the acid, but as there are microbes which can curdle milk without acid (in this case by means of a ferment like rennet), the product in any particular case may be a mixture of the two kinds of curd. But in most instances the curdling is due either wholly or predominantly to the acid. The microbes in milk responsible for the acid—the lactose fermenters—are of various kinds, but classifiable in a general way into four groups, which I may designate shortly as the groups of lactis acid, *coli aerogenes, bulgaricus* and lactic cocci respectively.

The species comprising the group of lactis acid are very small bacilli, ovoid or even spherical, coccoid rather than bacillary in form, usually seen in pairs, but often forming short chains and hence sometimes referred to as *Streptococcus lacticus.* These species ferment lactose with the production of acid which consists mostly of lactic (about 90%), the remainder being made up of formic, acetic, propionic and other acids and other bodies. The process usually comes to an end when the acid reaches about 1%, this amount of change in the reaction being inimical to the further growth of the species. The curd is soft and as no gas is formed, it is homogeneous; it has a mildly acid, agreeable taste.

The species comprising the group of *coli aerogenes* are the members of the *Bacillus coli communis* family, including *Bacillus coli communis* itself. They are more distinctly bacillary than *Bacillus lactis acidi.* The acid formed contains much less lactic (about 30%) and more of the other kinds, also more by-products of a less desirable character; a certain amount of putrefaction in fact. They can stand more acid than *Bacillus lactis acidi* and survive longer. Their curd is apt to be gamey and disagreeable as well as acid and may be more or less spongy from gas production.

The species known as *Bacillus bulgaricus* are large bacilli, often forming long threads. The acid formed is almost all lactic. They grow more slowly than the others and are not much interfered with by the acid, which may reach as much as 4%. The curd produced is apt to be disagreeably sour.

The lactic cocci comprise a number of species varying in characters and are not well defined. They produce very little acid, often not enough to curdle the milk.

Of these four groups, *Bacilli lactis acidi* and *bulgaricus* and perhaps also the cocci are to be regarded as special lactose fermenters; with the *Bacillus coli aerogenes* the process is incidental rather than characteristic and, as stated, there are undesirable accompaniments. Representatives of all four groups are likely to be present in any ordinary milk. The cocci come from the udder of the cow, *Bacillus lactis acidi* from her coat and the byres, *Bacillus coli aerogenes* from the dung and forage and *Bacillus bulgaricus,* it is said, from the

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 12, 1922.

cow's intestine. It is obvious that all of them can readily gain access to milk during the course of its collection. Coincidently other species, bacteria, yeasts and moulds, many of them putrefactive, get into the milk from its surroundings, the number of such varying with the circumstances, cleanliness of operations, amount of dust about and so on. Later the milk gets additions of these kinds of microbes from every vessel into which it is put and from the air, until by the time it reaches our tables it is apt to hold a rich mixture of them.

But up to this time they have not done much harm to the milk. It is well known to milk bacteriologists that microbes do not commence to multiply at once in fresh milk and may even diminish in numbers during the first few hours. This has been ascribed to the action of some germicidal substance excreted with the milk, of the kind that is present in blood serum; maybe it is due in part to the fact that not all the bacteria which can get into milk, are able to establish themselves there. However that may be, the quiescent period is only a matter of hours and then multiplication becomes more or less rapid, according to circumstances.

The usual sequence of events is for the *Bacilli lactis acidi* to make the initial progress. They are quickly followed or accompanied by the *Bacilli coli aerogenes* and as both produce acid, the milk soon becomes sour. Which of these two species gains the ascendancy depends on various circumstances, principally on the original numbers present. *Bacillus bulgaricus* seldom makes much headway in these early stages and has little if any share in the souring. Its time is later; the milk has been used or thrown away before it makes much growth. But if the milk be kept and observed later, one can usually find *Bacillus bulgaricus* amongst other things. The putrefactive species have not been altogether idle up to the period of souring. Ordinary observation will often reveal tastes and smells in sour milk which show that the change has not been a purely acid one. The albuminous constituents have been undergoing decomposition as well as the lactose and culture plates will show that putrefactive bacteria have made some multiplication in the milk. How much of this occurs depends chiefly on the rapidity of lactic fermentation. Putrefactive bacteria thrive best in neutral or slightly alkaline media, such as milk is when normal. They hate acid and very soon cease to grow as lactic acid is formed. Thus putrefaction is checked and remains in abeyance until a much later period still, when the reaction has again been changed by decomposition of the lactic acid by such things as moulds. As a rule, lactic fermentation occurs rapidly enough to prevent any marked amount of putrefaction, but if the lactic fermentation makes default there may be much putrefaction without any souring. Milk in such a condition may look innocent enough, for putrefactive toxins do not always have bad smells or tastes; but it may be dangerous all the same. Thus, if souring fail or be prevented without at the same time eliminating putrefaction, we are deprived of a valuable danger signal; a warning that the milk has reached a state in which it is potentially unsafe.

In view of these various considerations, it will be apparent that milk which has soured in the ordinary way, will contain not only lactic acid, but also varying amounts of less desirable substances and whilst lactic species will probably be present in considerable quantity, there will be various other kinds of bacteria as well. The exact state of affairs depends on so many influences that it is impossible to say what would be the exact condition of the soured milk in any particular case.

The various forms of sour milk of the Eastern peoples to which Metchnikoff referred, have been examined at various times by various observers and appear to be similar in bacteriological content. They are all reported to contain at least one species of yeast, one or more species producing lactic acid and various other bacteria in smaller numbers. My examination of the mass of "Russian Culture" showed it to be of this composition. The nodules are composed of matted bacterial threads in which are intermixed numerous yeast cells, with here and there other bacilli, cocci and moulds. The species of lactic fermenter which particularly attracted Metchnikoff's attention was *Bacillus bulgaricus*, so-called because isolated from *Yahourth*, the Bulgarian form of the milk. The thread-forming bacillus in the "Russian Culture" mass corresponds in its characters to this species.

In practice the mass is placed in ordinary market milk and after some hours the acid milk is strained off and drunk, whilst the mass itself is washed under the tap and put into more milk to make a further supply. My examination of the strained off milk showed it to be bacteriologically very much the same as ordinary sour milk. Plates made before and after the addition of the mass revealed little difference in the number of ordinary species of the putrefactive kinds. Here and there *Bacillus bulgaricus* and yeasts were found; rarely many and sometimes very few. Thus, though abundant in the mass, *Bacillus bulgaricus* had little tendency to leave it; the few seen had rather the aspect of having been acidentally detached. It did not diffuse itself through the milk, which was not at all a culture of it in a bacteriological sense. The fluid is sour, sometimes disagreeably so, and has a super-added flavour and odour due to the work of the yeast. The relative preponderance of these two qualities varied, no doubt being determined by the relative activities of the *Bacillus bulgaricus* and the yeast. Presumably there were present some alcohol, esters and other fermentation products as well as lactic acid, this being the usual condition of the Eastern products which are technically known as fermented milks. Manifest putrefaction was seldom noted at this stage, but, as stated, the necessary bacteria are present and the fluid, if kept, soon became foul. It may be mentioned also that the mass, if washed and kept out of milk, also became offensive.

From these results it appears that the beverage made with "Russian Culture" differs from ordinary sour milk in being more acid and in containing fermentation products and bacteriologically only with respect to the few *Bacilli bulgarici* and yeasts. Putrefactive species of bacteria are present in both kinds of sour milk and seemingly in like numbers.

Now, although Metchnikoff heads his chapter on the subject "Lactic Acid and Putrefaction," the text makes it quite clear that he does not ascribe the virtues of his method to lactic acid, but to what he calls the lactic ferment, which also quite clearly is *Bacillus bulgaricus* and another species which he calls *Bacillus paralacticus*, similar to *Bacillus bulgaricus*. He does not advise the use of preparations of the Eastern kinds, either in natural or sterilized milk, but, on the other hand, condemns these mixed cultures and the use of natural milk to make them as potentially dangerous by reason of possible putrefaction products. His recommendation is to use pure cultures of *Bacillus bulgaricus* in sterilized milk.

I take it most of us would agree with him. With unsterilized milk and impure seed material one can never know how much one gets of what one wants and how much of what one does not want. "Russian Culture" as used does not seem well adapted to supply *Bacillus bulgaricus*. For this purpose it would be better to eat the mass and throw away the strainings. On the other hand, to load in with the milk quantities of the very microbes *Bacillus bulgaricus* is intended to oust does not look like a satisfactory method of dealing with intestinal putrefaction. Unquestionably one would prefer pure cultures for medicinal purposes. But we as physicians are not parties to the use of "Russian Culture" and I am not concerned either to approve or to oppose it. Its vogue is a popular one and the basis for its widespread use is rather nebulous. Perhaps Metchnikoff's principles do not apply, though it would not seem necessary otherwise to juggle with the microbe he made famous. Maybe "Russian Culture" has a value apart from its bacteriology; whether or not the long-continued ingestion of this acid, fermented and uncertain fluid is beneficial or otherwise I leave to your better judgement as clinicians.

SOME CLINICAL NOTES AND COMMENTS ON MYOSITIS AMONGST PAPUAN NATIVES.

By W. E. GIBLIN, M.B.,
Government Medical Officer, Samarai, Papua.

MYOSITIS is a fairly common affection amongst Papuans. Of the 906 persons admitted to the Samarai Native Hospital during the past two years, sixteen were suffering from some form of myositis, the majority associated with suppuration.

Two at least of these series were secondary to some definite cause. In one it was traumatism and in another pneumonia and were both of a non-suppurative type. I have also seen a suppurative myositis as a complication of gonorrhœa. Gonococci were demonstrated in the pus evacuated from the intra-muscular abscess.

There still remains, however, a group of cases whose ætiology is a matter for speculation.

It would be as well perhaps to give roughly a clinical description of the usual course of these cases and then to discuss their ætiology.

Clinical Course.

There are two types of cases: (1) The acute and (2) the sub-acute. The majority of my cases belonged to the latter group.

The history of a typical attack of acute myositis is somewhat as follows:

The illness commences abruptly, with high temperature and rigor, associated with most acute pains in the affected muscles, which are extremely tender to palpation. Usually in these acute attacks many muscles are involved—in legs, arms, back, buttocks and chest. The unfortunate patient is quite helpless and desperately ill; he dare not move a limb nor sit up, on account of the excruciating pain involved in any movement. Localized indurations may quickly appear in the affected muscles if superficial, soon followed by fluctuation. Fluctuation over a muscle may be detected within a week of onset of disease. In these acute cases the formation of pus is remarkably rapid. As a rule, after the abscesses are opened satisfactorily, the temperature soon comes down to normal and the patient recovers.

My patient unfortunately developed a septic pericarditis and died on the tenth day of his illness.

In the sub-acute form the onset is gradual, with vague pains in the affected muscles and a rise of temperature to 38.5° C. or 39° C. (101° F. to 102° F.). A smaller number of muscles are affected than in the acute form. In one patient six muscles were affected, in two patients four muscles, in three patients three muscles, in three patients two muscles and in five one muscle only. The affected part becomes swollen, painful to palpation and movement. Pus slowly accumulates in the affected indurated portion of muscle; it may be two or three weeks before definite fluctuation can be detected; fever persists and the patient becomes emaciated. In the case of some of the deeply seated muscles, no fluctuating swelling may develope and the collection of pus has to be found with an exploring needle.

After the pus is evacuated, the temperature gradually subsides. The patient is fit for duty again some two or three weeks later; quite fit, with no muscular impediment.

When the myositis is not associated with suppuration, the affected muscle becomes diffusely infiltrated, as hard as a brick. In the early stages the overlying skin may become hot and red and muscular movement is impossible. High fever (39° C. to 39.5° C., *i.e.*, about 102° F. to 103° F.) may persist for three or four weeks. The painful, indurated muscle slowly loses its induration and becomes functionally active again. In this type of non-suppurative myositis the muscles most commonly involved are those of the anterior abdominal wall and the *pectoralis major*.

The British authorities in tropical medicine seem to accept the view that these intra-muscular abscesses are of filarial origin. As the result of traumatism or from some unknown cause the adult filaria dies, produces irritation and a spot of lowered resistance to which pyogenic organisms migrate from the blood and produce an abscess. It is stated that fragments of adult filaria may be found in the pus.

Manson Bahr states that Wise and Minett have found filariæ living or cretefied amongst other places in "the ilio-psoas muscle four times," presumably within the muscle. Daniels also quotes Wise as finding an adult worm in the lymphatics of the abdomen and the right psoas muscle infiltrated with blood containing the embryos; he points out that such a condition could readily lead to the formation of a psoas abscess.

Manson Bahr also states that similar observations have been made in Fiji.

In his report on filariasis and elephantiasis in Fiji, under the heading abscess, which he gives as one of the clinical manifestations of filariasis, he states: "Portion of adult filariæ have been found by others in that type of abscess so frequent in tropical countries, which has been ascribed to this cause. Such abscesses of apparently spontaneous origin are very common amongst the Fijians in the substance of the *gastrocnemii*, in the popliteal space, in the groin, in the substance of the *quadriceps extensor* and also in the upper extremity, over the internal condyle of the humerus, in the axilla, in the substance of the *latissimus dorsi* and *serratus magnus* muscles." . . . "In the case of a Fijian, two recently dead adult female filariæ were removed from an inflammatory swelling containing pus. The mass was situated over the internal condyle of the humerus and apparently connected with the epitrochlear gland." Bahr gives details of other abscesses in Appendix XI., but in none of these did he find an adult filaria.

He never succeeded in demonstrating an adult filaria in an intra-muscular abscess. He did succeed, however, in growing a pure culture of *Staphylococcus pyogenes aureus* in three instances and *Staphylococcus pyogenes albus* in one other. All these four patients had micro-filariæ in their blood. As he states that 52.5% of Fijians either harbour micro-filariæ or show manifestations of the disease, perhaps this is not to be wondered at.

It would appear that Bahr in the above quotation is confusing two separate clinical entities. The abscesses of the axillæ, groin and in the region of the epitrochlear gland are undoubtedly often of filarial origin, but it is very questionable whether the intramuscular abscesses mentioned as occurring in the substance of the *gastrocnemii, quadriceps extensor, latissimus dorsi* and *serratus magnus* can be considered as of filarial origin. Castellani and Chalmers, under the morbid anatomy of filariasis, quote Bahr as having demonstrated the presence of the "dead worm" in the abscesses connected with the above muscles. This statement is incorrect. It was only in connexion with the abscesses in the region of the epitrochlear gland that he did so.

Such a statement is unfortunately very misleading to the lonely general practitioner of the tropics, for he is so apt to accept with implicit faith all that his text-books tell him.

My endeavour so far has been to "threaten" this belief that the adult filaria is the primary cause of these intra-muscular abscesses.

After observing a few of these cases, I have become more and more disinclined to regard the adult filaria as the primary cause of these intra-muscular abscesses. I have always been led to consider that filarial lesions are associated rather with the lymphatic system, whereas here we have a disease most definitely attacking the voluntary muscles.

There appear good reasons therefore why this affection might be considered as a myositis of specific origin. In its acute manifestations the affection closely resembles an acute infectious disease with focal lesions in the voluntary muscles. On searching the medical literature available in an endeavour to support this contention, the following is what I have been able to find.

The British text-books of tropical medicine previously mentioned leave the question of myositis severely alone.

Castellani and Chalmers, under the heading *"Myositis Purulenta Tropica"* assign a few cursory lines to the disease, but they are still obsessed with the belief that filariæ are responsible.

Osler and McCrae (1909 edition), under the heading "Primary Suppurative Myositis," describe a disease that closely corresponds to the infective myositis observed in this country. The article is written by Walter R. Steiner. In fact, it appears to be the identical disease. He defines it as "a single or multiple muscle inflammation, mostly acute, of bacterial origin, presenting clinically the picture of an acute infectious disease and generally ending in suppuration."

The disease is not peculiar to the tropics; cases have been reported from European countries. Whether it occurs in Australia I do not know.

It is common in Japan, Samoa, West Coast of Africa, probably Fiji and other tropical countries, hidden under the guise of filariasis.

Osler and McCrae state that the French were the first to describe the disease. In 1869 Foucault reported a case and Vicaise in 1877. In 1898 Lorenz gave a detailed account of some eighteen cases. Many Japanese have investigated the disease in a most comprehensive and thorough manner, notably Scriba and Miyake. Both these authors reported the presence of *Staphylococcus pyogenes aureus* in the pus in the majority of their cases and consider it the specific cause. By animal experiment Miyake succeeded in producing, by inoculation with cultures of the staphylococcus isolated from the pus, a disease similar to that observed in man. A staphylococcus was present in the pus evacuated from the abscesses of three of my patients. Their blood showed no eosinophilia and no filaria embryos, either at 10 a.m. or 10 p.m.. In two other cases I did not succeed in demonstrating any organism in the pus. The pus was not examined in the rest of the suppurative cases.

It is assumed that the specific staphylococcus finds its portal of entry into the body through some septic scratch, furuncle or pustule. One of my patients had a large abscess of his buttock shortly before the onset of his suppurative myositis. It is assumed that the organism is distributed to the various muscles by the blood stream. Muscles are notoriously resistant to inflammation, the presence of a *locus minoris resistentiæ* must therefore be found. Trauma, fatigue and over-exertion may be exciting causes. Miyake apparently has proved that if a

muscle or some muscles were overworked, some of their fibres might be torn and punctiform hæmorrhages might occur, which would afford good culture media for the circulating bacteria.

The disease is decidedly more common in males than in females.

All my sixteen patients were males. The natives were indentured labourers, however, as no woman is allowed to serve a term of indentured labour in Papua. Amongst village natives the disease appears to be of rare occurrence. This would appear to support the suggestion that excessive muscular exertion may favour the onset of the disease.

Conclusions.

In these comments and notes I have endeavoured to indicate that the proof that these deep-seated intra-muscular abscesses are of filarial origin is of not very sound foundation.

As an alternative it is suggested that the clinical manifestations and course of the disease in which these abscesses commonly occur, is highly suggestive of the affection being a clinical entity, a primary infective myositis of specific origin.

In fact, it is the same disease described most completely by the Japanese many years ago and termed primary suppurative myositis by Osler and McCrae.

It remains for somebody more worthy than myself definitely to prove or disprove this contention. Unfortunately filariasis occurs in Japan.

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SOME EXPERIENCES WITH DIPHTHERIA IN THE COUNTRY.

By David D. Browne, M.B., B.S. (Melbourne),
Cobden, Victoria.

Much is being heard at present of the increase of diphtheria and of methods of prevention. The increase in my own district has been very considerable in the last two years. The following experiences may not be without interest to some, particularly perhaps to those who, like myself, are health officers to large country districts.

In the bush some eighteen miles from my home town there are two small settlements where the conditions are almost ideal for the spread of diphtheria.

Houses, badly built, often over-crowded with children, are clustered together into groups with, as a rule, nothing but the most primitive form of drainage. The method of supply and distribution of milk is varied and casual. The township is almost inaccessible in wet weather and cases of illness are seldom seen during the early stages. All the school children, over forty in number, gather in one room.

The nearest permanently open infectious diseases hospital is forty-eight miles away. Add to this the fact that the value of throat swabs for diagnosis appears to be discounted by the time it takes them to reach a laboratory and it will be realized that an epidemic in such a place, typical of so many country settlements, might be very difficult to deal with.

This was realized two years ago, but my appeals to the local authorities, chiefly for a local place of isolation, met with no practical response.

Diphtheria came early in the year and before long a dozen children were affected, in spite of the most strenuous measures on ordinary lines, *viz.*, isolation of patients, temporary closure of the school, disinfection (as thorough as possible, but hopeless in such a place), prohibition of milk being supplied from houses where any throat affection occurred and the prophylactic use of antitoxin.

As probably every child in the place was a contact, the Schick test was performed on the school children for a threefold object, namely, to serve as a guide in the prophylactic use of antitoxin, to enable a warning to be given to the parents of the susceptible children and to serve as the basis of a scheme of preventive inoculation of the child population if such became feasible.

By the use of culture tubes instead of throat swabs for transmission to the Laboratory in Melbourne five diphtheria carriers were discovered among the forty school children examined. One or two of these may have been very mild cases of diphtheria rather than true carriers.

These carriers had to be isolated in their own homes. The neighbouring shire, with its hospital, could not undertake the responsibility of their treatment because of the unreliability of bacteriological diagnoses from Melbourne in the ordinary way (by means of swabs). This was the very good reason given. Needless to say, their isolation and treatment in their own homes was more or less of a farce.

In a neighbouring settlement situated in a narrow valley, with a school of thirty-six children, the conditions were so similar that the Schick test was carried out there also and a search for carriers made. One doubtful carrier was discovered, but he had had a sore throat during the previous week and had stayed home from school for a couple of days.

Of the sixty-eight children tested, twenty-three reacted to the Schick test. At first the test was difficult to interpret, but with the second batch of children the reactions were very definite.

The value of preventive inoculation by the toxin-antitoxin method, the result to be achieved and its value to individuals and the community were then explained as simply as possible to the people of these two districts by notices bearing the signature of the Shire Secretary and Health Officer, but the response of the people to the opportunity of having this done as a public health measure was almost nil, so that it was useless to proceed.

One longs for improved facilities for laboratory diagnosis and some means of local isolation, but there are emphasized by this experiment in applied public health, if one may call it so, two factors which, more than anything else, make successful

diphtheria prevention in the country well nigh impossible.

One is the incredibly strong prejudice of all classes against the use of any form of "inoculation" whatever for any purpose and the other is the remarkable disregard by Shire Councils of their responsibilities under the *Health Act, 1919* (Victoria).

The remedy for the first of these factors must be patient education, but there seems to be no remedy for the other.

Together they made the whole procedure extremely difficult and prevented the final step in this little campaign, the success of which, I believe, would have been of the utmost benefit to all concerned.

Since writing the foregoing an outbreak of diphtheria has occurred at the second settlement, as predicted. Brought from the first settlement by a young adult it spread by direct contact to two children who had been proved susceptible by the Schick test and then to their two elder untested brothers. The only one in the family to escape was the only one who had not reacted to the Schick test.

Two cases in other families have occurred since, one a susceptible child, the other an untested child over school age.

It is interesting to note that this outbreak would with practical certainty have been prevented by the immunization of the susceptible children as urged two months previously, for, not only would three of the ultimate six children have been protected, but the chain of infection would have been broken at the outset.

Reports of Cases.

THREE CASES OF LEAD POISONING IN CHILDREN.[1]

BY E. S. LITTLEJOHN, M.D., CH.M. (EDIN.),
Honorary Physician, Royal Alexandra Hospital for Children, Camperdown.

THERE has been a considerable amount of interest recently in the subject of lead poisoning in children and as I happen to have had three cases of the disease in the wards during the last few weeks, differing in their clinical features, I thought it might be of interest to read the notes of the cases.

The first case was that of G.O., a boy of four and a half years, from Cairns, North Queensland, who was sent to the hospital by Dr. Clubbe with the diagnosis of lead poisoning. He was suffering from double wrist-drop and foot-drop and was admitted on February 11, 1922. This case was perfectly typical of many that we have had in the hospital from time to time from Queensland.

The patient was said to have had an attack of infantile paralysis two years ago, the present illness beginning shortly after, with fever and vomiting and gradually increasing weakness of the right leg, followed by wasting of the muscles. The left leg then became similarly affected and then the arms and hands.

This is characteristic of lead poisoning in children, the legs being affected sooner and more severely than the arms and taking longer to recover. There did not appear to be any pain or tenderness in the limbs. He also became pale and suffered from anorexia and constipation, but had no colic.

He became restless, with twitching of the hands during sleep. His vision did not appear to be affected in any way. This also is according to rule. Only exceptionally does ocular paralysis accompany paralysis of the limbs.

His parents state that he has a habit of constantly sucking his thumb and that the verandah of his home, where he plays, has railings which are painted white. While in the ward he was frequently observed to be sucking his thumb.

On examination he was found to be somewhat pale and to have marked wrist-drop and foot-drop. There was considerable wasting and paralysis of the extensors of the fingers, but not of the extensors of the wrists, for, though he was quite unable to extend his wrists when his fingers were extended, he could do so when his fingers were flexed.

The small muscles of his hands were much wasted and paresed. In the legs there was much wasting and paralysis of the *tibialis anticus* and *extensor longus digitorum* and also of the *peronei*. There did not appear to be any pain or tenderness. The knee-jerks were absent.

There was no blue line on the gums. Jefferis Turner states that a blue line only occurs in a small percentage of children and, when present, consists merely of a few dots inside the gum, opposite perhaps one or two teeth only, unless there is necrosis or suppuration present, when there may be an extensive blackish discoloration.

Dr. Temple Smith kindly examined his fundi and reported that there was no optic neuritis or other abnormality.

The blood was examined by Dr. Marjorie Ross, who reported as follows: "Red blood cells, 5,000,000; hæmoglobin, 55%; colour index, 0.55. The red cells show punctate basophilia."

Basophilic granulation of the red cells is found in the majority of these cases. There was no albumin in the urine, but an examination at the Bio-Chemical Laboratory of the Royal Prince Alfred Hospital disclosed the presence of lead.

Under treatment with iodide of potash and sulphate of magnesium and massage he steadily improved and by March 25, six weeks after admission, he had regained much power in his arms and hands, the wrist-drop had quite disappeared and the foot-drop was less marked.

As his parents were unable to stay any longer in Sydney and were anxious to take him back to Cairns, he was then discharged.

The main points of interest in cases of lead poisoning are first the diagnosis and second the source of the lead.

As regards the diagnosis in this case, the prolonged history of headache, vomiting, constipation, pallor and gradually increasing paralysis and wasting, first of the extensors of the feet and then of the hands, also the presence of punctate basophilia and of lead in the urine put the matter beyond all reasonable doubt. As to the source of the lead, we know that this boy was in the habit of playing on a verandah with white painted railings and that he has a constant habit of sucking his thumb.

We also know that numerous precisely similar cases have been recorded in Queensland by many medical men, who have found the verandah railings and sometimes floors covered with powdery carbonate of lead from paint disintegrated by exposure and who after the most careful investigation have failed to discover any other source of the poison.

One of the main arguments against this theory is that, if it be true, then there should also be numerous similar cases in New South Wales and Victoria, which is not the case. The explanation of this is obvious and depends on the difference in the climate and the building of the houses.

In Queensland it is mostly too hot for young children to play out in the sun; they spend much of their time on the verandahs, where they can play protected from the heat of the sun. In New South Wales, on the other hand, the children play for the most part in the garden or yards or streets and only exceptionally on the verandahs. Furthermore, in Queensland towns the homes are almost always built of wood and are raised on piles, the verandahs being therefore railed in, nearly always with painted railings and it is interesting to note in this connexion that in the country, where the houses are not raised off the

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on May 12, 1922.

ground, the verandahs are low and unrailed or the railings unpainted, cases of lead poisoning do not occur.

In New South Wales the houses are mostly of brick, are mostly low on the ground and the verandahs are very often unrailed altogether or protected with brick or cement walls. Hence the circumstances of daily life of the children in New South Wales are totally different from those of the children in Queensland as regards their liability to lead poisoning from this cause.

The second case was that of D.L., a little girl of three, who was admitted on February 24, 1922, suffering from vomiting, convulsions and screaming fits. This case presented considerable difficulty in the matter of diagnosis. The only point of importance in the family history was that the child's mother's brother had suffered from tuberculous disease of the hip in childhood. The child lived in Sydney, had had measles a year ago and pneumonia nine months ago. Otherwise she had been well.

The present illness had begun five days previously with vomiting, headache, screaming fits, delirium and convulsions. The vomiting had become more and more frequent and on the night of admission, February 24, the child vomited twelve times. The other symptoms also continued and on the following night she screamed a great deal and had fifteen fits of convulsions. During these fits she appeared to be quite unconscious and had clonic spasms, sometimes on the right side and sometimes on the left. The spasms began at the eyes and mouth and travelled down to the arms and hands and then to the legs. The pupils were widely dilated, the eyes were deviated towards the right and nystagmus was present. There was no albumin in the urine. The temperature was 37.8° C. (100° F.).

The diagnosis at this stage appeared to lie between tuberculous or other form of meningitis, cerebral tumour, lethargic encephalitis or acute "coli-uria," probably the first-named. A lumbar puncture was performed and five cubic centimetres of clear fluid under slightly increased pressure were withdrawn. This proved sterile on culture; there was no visible deposit on standing. A catheter specimen of urine was examined for *Bacillus coli communis* and proved sterile on culture. The Wassermann and von Pirquet tests were also carried out, but no reactions were obtained.

During the next few days she varied considerably at different times, sometimes appearing to be better and more conscious. She had several convulsions and gave occasional sharp screams, but had no more vomiting. The temperature ranged between 37.8° C. and 38.6° C. (100° F. and 101.5° F.) for three or four days and then fell to normal on February 28 and remained so from thence onwards.

She gradually became more deeply drowsy and developed slight head retraction, tremor and rigidity of both arms and legs, more marked on the left side. The knee-jerks were increased, especially on the left side, and Kernig's sign was present, also more marked on the left. Babinsky's sign could not be elicited. She also developed paresis of the left external rectus, with internal strabismus and inequality of the pupils.

At this stage (March 3) Dr. Temple Smith kindly examined her discs and reported intense double optic neuritis with much swelling and engorgement of the discs.

On March 5 she appeared to be better, was more conscious, much less drowsy and had had no more convulsions, but appeared to be blind. Another lumbar puncture was done and a few cubic centimetres of clear fluid were withdrawn, which again proved sterile on culture. She improved steadily, remained conscious, had no more convulsions or vomiting, but gave an occasional scream. Her pupils remained dilated, but the internal strabismus was diminishing and her vision was evidently improving. The rigidity of her arms and legs disappeared, but tremor remained. A third lumbar puncture was done and twenty cubic centimetres of clear fluid under increased pressure were withdrawn, also sterile on culture.

After this, improvement in all respects became much more rapid.

On March 27 Dr. Temple Smith again examined her fundi and reported a remarkable improvement. The optic neuritis had almost gone and looked as if it were clearing up altogether. He therefore suggested lead poisoning as the causative factor.

There was no lead line on the child's gums and no lead could be discovered in the urine.

On questioning the mother, however, as to possible causes the information was obtained that the child had for some weeks previously to her illness spent a considerable time each day standing on a chair looking out of a window and had sucked and bitten most of the paint off the lower part of the window sash and frame. The condition therefore appeared to be one of acute lead encephalopathy.

Rapid improvement in every respect continued and by April 11, 1922, the strabismus had quite disappeared, vision appeared to be normal and the child was quite well, except for some tremor of the hands, which was the last symptom to disappear.

She was discharged on April 15 quite recovered after an illness of eight weeks.

There is no doubt whatever as to the benefit derived in this case from the lumbar punctures, which in all probability saved the child's sight.

As to the diagnosis, the first thought was cerebral tumour. Then for some days the case resembled clinically, first, tuberculous meningitis and then lethargic encephalitis. The latter diagnosis, however, appeared to be excluded some days later by Dr. Temple Smith's report of the presence of intense optic neuritis, for optic neuritis has only rarely been recorded in lethargic encephalitis and, when present, has been of mild grade. Finally, when the remarkably rapid clearing up of the intense optic neuritis suggested to Dr. Temple Smith the probability of lead poisoning, it was evident that this was an entirely satisfactory explanation of the condition, which the mother's story of the eating of paint by the child confirmed.

The blood, unfortunately, was not examined in this case.

The third case was that of F.H., a boy of nine, who was admitted on February 21, 1922. This boy was sent from the Out-Patient Department by Dr. Margaret Harper with the suggested diagnosis of lymphatic leuchæmia, a blood film sent by Dr. Harper to the Pathological Department having shown a very marked increase in the lymphocytes.

There was nothing of importance in the boy's family history or in his previous history. The present illness had begun about three months previously with persistent headache, increasing pallor and "faint turns." He suffered also from anorexia, constipation and increasing nervousness and weakness. There was no history of hæmorrhage.

On examination the boy appeared to be somewhat pale and thin and seemed nervous, exhibiting a nervous tremulousness of his hands. There was no enlargement of the spleen or lymphatic glands, though, owing to the absence of fat, the latter were palpable in various regions.

On February 27, 1922, a blood count was done by Dr. Marjorie Ross, who reported: "Red blood cells, 5,000,000, with a slight diminution in the hæmoglobin value to 70%; the colour index was 0.7; leucocytes, 11,000, the differential count showing polymorpho-nuclear cells 12% and lymphocytes 86%." Dr. Ross expressed the opinion that this blood picture could not be regarded as that of a lymphatic leuchæmia.

The boy was treated with arsenic and iron and appeared to be steadily improving.

On March 13 another blood count was done and Dr. Ross reported: "Red cells, 5,000,000; hæmoglobin value, 80%; colour index, 0.8; and leucocytes, 10,000, the differential count now showing polymorpho-nuclear cells 24% and lymphocytes 71%." Dr. Ross also reported that a very few of the red cells showed punctate basophilia.

On the strength of this report a specimen of urine was sent to the Royal Prince Alfred Hospital Laboratory for analysis, with the result that a trace of lead was discovered to be present. There was no lead line present on the boy's gums and no albumin in his urine.

His fundi were examined by Dr. Temple Smith, who reported that there was no optic neuritis or other abnormality, except some chorioidal atrophy and pigmentation below the left disc.

The boy's mother was questioned as to any possible source of lead poisoning and the information was elicited that for several weeks, beginning three or four weeks be-

fore his illness, he had been in the habit of playing with some pots of paint his father had in a shed, painting everything about and getting the paint all over his hands; also that he was in the habit of biting his nails.

He was now put on a mixture of potassium iodide and magnesium sulphate and improved steadily, being discharged on April 1 well. He reported himself again on May 1 as being quite well and going back to school.

The disturbance in the proportion of the leucocytes in this case was probably due to the lead intoxication.

These three cases are, in my opinion, instances of lead poisoning and are examples of lead intoxication being caused by the repeated ingestion of small quantities of lead paint over a prolonged period. Probably there are many cases of minor degree of poisoning in children which do not reach hospital and, being without hospital facilities for diagnosis, escape recognition.

The absence of a lead line on the gums in all three cases is not of much importance, as it is only found in a small percentage of children.

I beg to acknowledge indebtedness to several papers on the subject by Dr. Jefferis Turner and Dr. Lockhart Gibson of Queensland. My thanks are also due to my Resident, Dr. Davis, for his care in drawing up the notes of the cases.

TWO SURGICAL CASES.[1]

By P. L. HIPSLEY, M.D., CH.M. (SYDNEY),

Honorary Surgeon, Royal Alexandra Hospital for Children, Camperdown.

CHRONIC INTUSSUSCEPTION OF THE APPENDIX INTO THE CAECUM.

W.C., aged seven years, a male, was admitted to the Children's Hospital on August 2, 1921. The child had been ill for three weeks. The onset was marked by severe and sudden pain, the mother stating that "it doubled the child up." After lasting several hours the pain passed off, but recurred at frequent intervals until the child's admission to hospital.

The diagnosis on admission was appendicitis. The bowels had been opened daily and no blood or mucus had been passed in the stools. The temperature was quite normal. There was no abdominal rigidity, but marked tenderness over the umbilical and right lumbar regions.

Operation.

A McBurney grid-iron incision was made and the caecum was delivered. No portion of the appendix could be seen, but a small depression which would barely admit a probe was seen at the end of the exposed portion of the caecum. The interior was occupied by a mass the size of a large walnut. It was quite impossible to evert the appendix and *caput caeci*. An incision was then made into the caecum and the *caput caeci* with the enclosed appendix was excised. The first opening into the caecum was then closed and a tube was placed in the open end of the *caput caeci* and brought through the abdominal incision, a few sutures being placed so as to unite the peritoneum with the serous coat of the caecum. Fæces discharged through the tube and, after its removal at the end of a week, through the fistula for about six weeks, when the opening closed without further treatment.

Commentary.

Cases of this nature are rare. G. A. Wright described a similar case in *The British Medical Journal* of June, 1897. In this case also a diagnosis of chronic appendicitis had been made. The absence of intestinal obstruction and the fact that no blood is present in the stools tend to lead to an incorrect diagnosis. The absence of fever and the recurring attacks of severe abdominal pain, unaccompanied by muscular rigidity, should make the surgeon suspect this condition, especially if a movable mass can be felt in the right hepatic region.

[1] These patients were demonstrated at a meeting of the New South Wales Branch of the British Medical Association on May 12, 1922.

HYPERNEPHROMA OF THE KIDNEY.

I.F., aged fifteen months, was admitted to the Children's Hospital on January 26, 1922. The mother had first noticed a swelling in the child's abdomen two months prior to admission. She stated that it had grown very rapidly since she had first noticed it.

On admission there was a tumour about the size of a coconut in the left kidney region. The urine was normal, no trace of albumin or blood being present.

Operation.

An oblique posterior incision reaching from the inner end of the twelfth rib downwards and forwards to well beyond the level of the anterior superior spine of the ilium was made and the tumour, which proved to be a hypernephroma, was removed after the greater portion of the twelfth rib had been excised, which enabled the removal of the large tumour without interfering in any way with the peritoneum.

Commentary.

Hypernephromata are the most frequent tumours found in the kidney. They are, however, relatively more common in adults than in children, sarcomata being the more common in the latter. Owing to the tendency of these tumours to break through their capsule and to invade the branches of the renal vein, they must be regarded as potentially malignant, even in their earliest stages of growth. Metastases are common in the lungs and bones.

Reviews.

MENTAL DISEASE.

THE appearance of a fourth edition of Dr. Stoddart's "Mind and Its Disorders"[1] within two years of the advent of its third edition is very suggestive of the high appreciation this work has met with and confirms the commendation that edition received in the pages of THE MEDICAL JOURNAL OF AUSTRALIA of January 31, 1920.

This edition is very little larger than the last, but three plates have been added; the price has been increased by four shillings. The author explains that the demand for another edition so soon had rather upset his plans for radical changes in the general scheme of the manual, but he has incorporated some changes in classification and now places neurasthenia and exophthalmic goitre among the psycho-neuroses and epilepsy among the psychoses. In the body of his book he describes exophthalmic goitre as a form of anxiety neurosis; on further thought, however, he relinquished this opinion. It is satisfactory to note that the author is not inclined to adhere only to the psychological standpoint in considering mental processes, but admits the importance of the neurological standpoint and the growing feeling of the possibly very large factor supplied by the endocrines in neurosis, psycho-neurosis and psychosis.

[1] "Mind and its Disorders: A Text-Book for Students and Practitioners of Medicine," by W. H. B. Stoddart, M.D., F.R.C.P.; Fourth Edition, 1921. London: H. K. Lewis & Company, Limited; Demy 8vo., pp. 592, with 84 illustrations, including ten plates. Price: 22s. 6d. net.

The author appears in places to contradict himself, for, after devoting 194 pages to physiological psychology, which derives all psychical processes from sensation, he then proceeds to label this as laboratory psychology and goes on to say that the core of our daily mental life is not sensation but desire, known or unknown.

Dr. Stoddart is wholly given over to the heresies of Freud, at least in theory, though it may be gathered from his careful descriptions of some of the psychoses that his experiences as a practical alienist are not compatible with such a short cut to mental health. He seeks to reconcile such a statement as: "The recognition that intra-psychic conflict is the fundamental cause and essence of all mental disorders, whether functional or organic in origin" with a further statement that: "The volitional system is the physical basis of conscious and preconscious repressing forces. The effect of organic affections of the brain is therefore to weaken the repressing forces, so that complexes which would otherwise have remained repressed, are allowed to battle on equal terms with the repressing forces (intra-psychic conflict), the result of such conflict being mental disorder resembling that of the biogenetic psychoses or neuroses."

The author's Freudian taint leads him to write: "Psychoanalytical investigation invariably discovers some unrecognized and therefore unconscious sexual perversion and we are driven to the conclusion that nobody is normal sexually!" And, again. "Constipated people are always anxious respecting the expenditure of money, while those whose bowels are open regularly, do not worry about their financial affairs!" Another weakness or partiality is disclosed in his fear: "That those people whose mental conflicts are such as would cause them to seek relief in alcohol, must (in its absence) either turn to some worse drug or solve their conflict through psychosis (become insane?)." And, again: "Prolongation of even limited restrictions (on the sale of alcohol) would presumably lead to some form of mass paranoia such as 'industrial unrest' or Bolshivism in Russia."

But these are only excrescences on an admirable book, which gives a very clear and reliable description of the various mental diseases and their care and treatment. The chapter on combined insanities is especially very helpful, but could with advantage be extended by more examples and greater detail. Many instances of this nature crop up in psychiatric practice and render accurate diagnosis difficult even to experienced alienists.

FUNCTIONAL NERVOUS DISORDERS.

DR. DONALD E. CORE, whose book on functional nervous disorders[1] has recently appeared, is lecturer in neurology at the Victoria University of Manchester, which in itself entitles his remarks to respect. The object of his book is to remove current vagueness in the definition and classification of functional nervous disorders and their relation, not only to each other, but also to organic abnormalities. While it claims to have practical value, it is essentially an academic treatise, written by a specialist for specialists. The reader looking for an account of the somatic manifestations of what in ordinary text-books is usually considered under the heading "neuroses" will be disappointed. Instead, he will find a detailed discussion, mainly from the psychological aspect, of the hysterias and of conditions resembling what others call neurasthenia and psychasthenia.

He defines functional nervous disorders as "the expressions of abnormally controlled reactions, determined and adjusted by environment and not by any gross or demonstrable lesion" and rightly says that from the clinical aspect there would appear to be only one test determining whether any one of these disorders is in reality functional and that is its potentiality for a complete restitution to the normal. It is probable that no true functional nervous disorder remains purely functional for a great length of time. Next, he makes an interesting division of these disorders into three groups: (1) A "retrogressive or atavistic" group, affecting people who live and move in a medium of defective emotional control and whose psychical processes approximate to those of the non-human animals. This group comprises the hysterias. (2) An "instinct-distortion" group, arising in association with the "herd instinct," comprising the terror neurosis, the anger neurosis and unsatisfied desire, called the dysthymias. (3) A "progressive or evolutionary" group, the mnemoneuroses, so-called because conscious memory plays a more important part than it does in hysteria. In this group dread is the chief agent and the clinical picture bears some resemblance to the neurasthenia and psychasthenia of other writers.

The following extract may give some idea of the author's views and style: "To sum up, then, we may say that in the hysterias we have a lack of control affecting the emotions as a whole and in integral relation to this the non-diffusion of emotional disturbances through the available associational dispositions, such disturbances being transferred *in toto* along one set of such dispositions only. The correlate of this is psychical dissociation, which, as in the non-human animals, is conducive to prompt and effective kinetic response, to emotional relief and therefore no *necessary* mental distress.

"In the mnemoneuroses we have a lack of emotional control which affects one group of the emotions as compared with the other, centripetal or centrifugal respectively, and an extreme degree of activation of associational dispositions in the atmosphere of the emotional tone responsible. There is no associated psychical dissociation and the extent of the associational dispositions concerned is conducive to the frequent recurrence of the responsible emotional tone in memory. There is little or no kinetic response and there is resulting mental distress.

"In the dysthymias we have an emotion-provoking environment, herd-suggestion and association dispositions activated in the spheres of the two orders of emotional tones. In the formation of these disorders the relationship between the environment and the balance of association atmospheres is direct and in the inverse ratio and, as far as these disorders are concerned, the influence of herd-suggestion producing them varies directly with the emotion-provocative elements of the environment. Here also kinetic response is absent and the intellectual faculties are impaired for the period of the disorder."

The great war, with its extraordinary crop of hysterical manifestations, has led to the printing of many works in which principles such as those enunciated by Janet, Freud and others have received elaboration and clinical application. This is one of them and one of the best we have read, in that it breaks more ground than any of its fellows. Of course, all such works deal with problems lending themselves to speculation and calling for much further investigation before they can be regarded as finalized. There may be many who will refuse to accept the argument of Dr. Core and others that man in his psychical activities shows an association with lowly organisms and on the lines laid down the practising physician will find it difficult to explain the manifold hysterical states with which he has to deal. In regard to neurasthenia and other neuroses, with which previously he thought himself acquainted, he may not recognize these disorders in the garb in which they are dressed here. This notwithstanding, the book represents a manifestly honest attempt to provide a satisfactory classification of the functional nervous disorders from the psychical aspect, dogmatic it may be, but it is firmly reasoned and is a praiseworthy contribution towards the elucidation of conditions as common as they were once obscure.

The figures are simple diagrams to illustrate psychological points. There is a good index and the printing and general get-up of the book leave nothing to be desired.

[1] "Functional Nervous Disorders: Their Classification and Treatment," by Donald E. Core, M.D. (Manc.), M.R.C.P.; 1922. Bristol: John Wright & Sons, Limited; Royal 8vo., pp. 371. Price: 25s. net.

Analytical Department.

"LACTOGEN."

IN August, 1921, arrangements were made with the Manager of the Nestlé & Anglo-Swiss Condensed Milk Company, Limited, for the inspection of the process of manufacture of "Lactogen," in accordance with the requirements of the Analytical Department of THE MEDICAL JOURNAL OF AUSTRALIA. Our inspector visited the factory during the month of September. A thorough inspection and investigation were carried out at the factory, at two farms and at the laboratory in Melbourne. After a delay of over nine months we have now received the report on the inspection and analyses. It must be understood that we have no knowledge whether the conditions described exist at the present time.

The preparation of "Lactogen" is carried out in the rich agricultural district of Gippsland, rather more than one hundred miles east of Melbourne, Victoria. "Lactogen" is a dried whole milk preparation. The milk is obtained from places lying around the factory, a certain proportion being brought by train a distance of a few miles.

The Factory.

The factory is a well-built, modern building, situated on the bank of a river in a thriving town. In addition to the plant with which "Lactogen" is made, it contains another unit with which sweetened condensed milk can be manufactured. The factory is well built and is well lighted. Cement floors are found in all the rooms. The cement has been well laid and is free from defects and cracks. The approach to the factory where the milk is unloaded has also been laid with cement. A high standard of cleanliness is enforced in connexion with the transport of milk to the factory. The metal cans were found to be clean and dry and the arrangements for washing and heating the tins after use seemed quite sufficient to insure clean, dry cans. All cans were properly fitted with lids.

The Preparation of "Lactogen."

At the factory the milk is received and passed through a strainer and weighing machine. The strainer was fairly clean, showing that the milk had received average care during its collection. The collecting room was clean; no signs of splashed milk were seen on the walls. The milk passes through a cooling tube to the vats, where it is stored at a temperature of about 10° C. (50° F.). At the time of the inspection the milk was passing direct to the vats. Two vats of rather more than 22.7 hectolitres (500 gallons) each were filled under observation. No attempt was made to ascertain the actual percentage composition of the mixture. It was assumed that the milk was of standard composition in respect to fat. A "drip sample" was collected from the cooling tubes during the process, but no attempt was made to analyse it. The foreman in charge stated that experience, based on the daily analyses, showed that the milk received at the time at the factory was sufficiently near to the desired composition.

The cooling condenser was not in good order, leaks having formed in its tubing. From the amount of discoloration on the adjacent walls it was concluded that the leak had been present for some days. As a result the neighbourhood of the cooler was dirty and wet. As persons walked over the wet places, the dirty milk was distributed by the boots over the floor of the factory. The foreman stated that at the end of the shift the whole was washed with hot water with a hose and thoroughly cleaned.

The milk was received from the cooling tubes into vats in which it was kept in motion by suitable agitators. To the milk in the vats lactose and sodium bicarbonate were added in proportion to the quantity of milk in the vat. The addition of these bodies was not well performed. An examination of the buckets from which these substances were added, showed that complete solution had not been attained in the hot water used as a solvent. The supervision of the cooling tubes and these vats was unsatisfactory. An inspection of the bench provided for the routine analyses showed that no systematic control of each vat was undertaken. No laboratory with proper equipment is provided at the factory. Except in regard to these stages of manufacture, the supervision and conduct of the process was satisfactory.

The milk passes from the vats into a large room in which it undergoes special treatment and in which it is dried. This room is well kept; the floor is dry and the machines are bright. The condition of the many pieces of machinery was evidence of good supervision and well-trained artisans. From a clarifier the milk passes to the special treatment of the homogenizer. This treatment may be summarized as the passage of the milk at a suitable temperature through small valves under high pressure. The object of the treatment is the disintegration of the globules of fat.

After the special treatment the milk passes warm to the rollers. The milk is spread over the metal rollers, which are heated with steam. The milk dries to a film like tissue paper on the rollers, from which it is removed by a knife suitably placed in relation to the roller. The milk remains less than four seconds in contact with the roller. A number of roller machines of different patterns were in use. All the machines were noted to be working efficiently. The milk flows upon the roller on one side. As the roller turns, a film of milk is carried upon its surface. The heat of the roller expels the greater part of the water. The film is not visible on the roller until it is separated by the blade of the knife. The rollers rotate slowly, the milk travelling rather less than one-half of the revolution. The dried milk is conveyed mechanically to another room, where it is broken to powder by a rotating brush and where the powder is passed through a sieve to separate coarse particles. In this room, where precautions are taken to exclude dust, the powder is packed in sealed tins containing about twenty-five kilograms (fifty-six pounds) of dried product. Samples are taken from each tin and sent to the head office for analysis.

The engine-room, boilers, furnaces and condensing plant and pumps were found to be well kept. A store showed that good order was exercised in keeping a large stock of materials.

The Milk Supply.

Visits were paid to two farms to examine the conditions under which milking is conducted. The factory lays down no rules in respect to the milk supplied to it or in respect to the conditions under which it is obtained. It retains the right to reject any sample of milk. The factory depends on its collection of milk to insure proper conditions. As the milk is collected in the factory waggons, it is received without delay. Within an hour or two of leaving the cow the milk passes through the cooling tubes at the factory.

At both the farms visited for the purpose of inspection milking was done by machines. The machines were found to be quite clean. The sheds had been well cleaned at one farm, but not at the other. Although the milking machines and utensils were found clean and although the sheds had a sufficient supply of water, no attempt had been made to diminish dust in the sheds or their vicinity. The milk was therefore ordinarily contaminated milk. The cows seemed healthy, but were not specially examined. Attention may be directed to the rich pasture country and to the large quantity of green fodder available. Although the inspection was made at the end of winter, abundant green food was available. Investigation has shown the value of green fodder in regard to the amount of vitamins present in the milk.

Chemical Control.

A visit was made to the office in Melbourne, where an excellent laboratory is installed and where the powder is

packed for retail distribution. Under the skilled control of the head of the laboratory the whole of the products are subjected to test in respect to composition and to solubility. Reports are sent to the factory in regard to the characters of the products sent from it. A system of blending is in vogue whereby the variations in composition are reduced. The effects of this control will be evident from the results of the control chemical analyses appended to this report.

Packing.

The packing room is free from dust. The girls who do most of the work, wear overalls and are instructed in the habits of cleanliness to be followed to insure the least contamination of "Lactogen" with bacteria. The packing is carried out with as little handling of the powder as is possible.

An examination of the figures made available in the laboratory showed that a product of practically constant composition was being made. The tests carried out on purchased "Lactogen" and detailed later in this report show that "Lactogen" does not vary in composition and that the methods employed in the factory, though not as well regulated as they might be towards insuring a satisfactory standard of composition, have not led to any deterioration in the product.

Composition and Properties.

"Lactogen" consists of a dry powder of a light yellowish colour. It possesses an agreeable odour and has a pleasant taste. The powder appears uniform on careful inspection. A close scrutiny of the contents of a number of samples obtained from different States of the Commonwealth failed to disclose the presence of any foreign material. With the use of a lens and with the microscope the presence of dust could not be detected. The appearance of the different samples of powder was similar. Some of these samples were kept, after being opened, for a period of some months. They did not undergo any change in their physical properties, nor did they develope any different odour or taste. These tests show that "Lactogen" possesses a high degree of stability.

As shown by its mode of preparation, "Lactogen" is a dried milk. Its components will be proteins, carbohydrates, fats and mineral salts. An analysis of a sample purchased in the open market yielded the following figures:

Moisture	3.2%
Proteins	26.2%
Carbo-hydrates	41.6%
Fats	23.9%
Ash	5.3%

It would therefore appear that "Lactogen" when mixed with a suitable amount of water yields a fluid closely approximating in components and strength cow's milk of good quality.

An analysis was made of a portion of the dried milk collected as it left the rollers at the factory. The results of the analysis were:

Moisture	2.1%
Proteins	25.6%
Carbo-hydrates	42.0%
Fats	24.8%
Ash	5.4%

From these figures it would seem that about 2% of moisture is left in the product after desiccation.

From a group of tests it was concluded that no sugar other than lactose is added to the milk during its preparation. Cane sugar and glucose could not be detected.

A series of estimations of fats has been made with the object of determining the degree of accuracy of the attempt to produce a substance of constant composition. Samples of "Lactogen" were purchased in different parts of Australia. The figures for these analyses represent the amount of fat in the substance completely dried. The average of the analyses was 24.9%, the minimum figure being 23.7% and the maximal figure being 27.1%. The range of variation is about 8%. For practical purposes this may be considered a satisfactory degree of constancy.

The behaviour of the powder when mixed with warm and with hot, but not boiling water, was closely examined. The powder mixes well with water, yielding a fluid similar to milk and of apparently uniform consistency. This liquid has the same agreeable flavour as normal cows' milk. The proteins are well distributed through the liquid and show no tendency to form plates. The fats do not give rise to globules floating upon the surface. On examination with the microscope the liquid shows a characteristic appearance. The globules of fat are broken up into minute portions and the particles of protein are of a partly amorphous, partly granular character. The minute size of the solid particles is an important feature of the "milk" made with "Lactogen." One stage in the process of manufacture is directed towards the attainment of this object. It cannot be doubted that this excessively fine separation of the proteins and fats assists in the digestion and absorption of both these substances.

The chemical analyses of the dried milk, which has been treated *secundum artem*, thus yielding "Lactogen," shows that it possesses the components of milk in such proportions as to render it a food of the same nutritive value as cows' milk. The mode of preparation is unlikely to injure the fat-soluble vitamin A, nor would it probably diminish to any serious extent the anti-scorbutic food accessory substance. No tests have, however, been made upon animals to determine the presence of vitamins.

Bacterial Content.

"Lactogen" being of suitable composition is used widely as a food for infants and young children. It was therefore necessary to make an examination of the number of micro-organisms that are present in the prepared powder. The process of manufacture is arranged to prevent any considerable number of bacteria being present at any time during the process of manufacture. The milk is collected from the farms as soon as possible after the hour of milking the cows. It is brought as rapidly as possible to the factory, where it is immediately cooled to about 10° C. (50° F.). Few opportunities are given for the multiplication of bacteria. In this way the effect of any contamination of the milk during its collection and transport is reduced as far as practicable. Inspection of the milk and the use of the "acid test" prevent the addition of stale milk to the bulk vats of the factory. It is extremely easy to detect stale milk when no precautions are taken to assist preservation.

An estimation of the number of bacteria present in a gramme of the material leaving the rollers showed that it contained 1,100 bacteria approximately. The process of drying milk does not lead to complete sterilization, though the greater proportion of the germs is destroyed. A series of samples of "Lactogen" purchased in different States were subjected to a bacteriological test to ascertain the number of germs present. These samples showed an average number of micro-organisms of 2,800 per gramme of "Lactogen." The range of variation extended from 1,200 to 3,600 per gramme. It would thus appear that this product is relatively free from bacteria and that it is packed and sent to the market under clean conditions. These figures show that "milk" prepared from "Lactogen" with sterile water (boiled water allowed to cool somewhat) contains far fewer bacteria than even the best fresh dairy milk. An examination of the forms of bacteria shows that those present in the dried milk from the rollers belong to a large extent to the *Bacillus mesentericus* group. No uniformity could be noted in the flora from the purchased samples. No pathogenic micro-organisms of any kind whatever were identified.

It may be concluded that "Lactogen" is a dried milk prepared from fresh milk in which bacteria have not multiplied to an extent to produce any changes in the milk or to affect in any way its utility as a food.

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Evading Responsibilities.

THE SENATE OF THE UNIVERSITY OF SYDNEY has appointed a Professor of Psychiatry. A year ago we ventured to question the wisdom of the Senate in establishing this chair. Since then the Senate has continued to follow precedent to the detriment of the Australian graduate and has perpetuated a mistake which is likely to inflict much harm unless it is recognized and rectified. No exception is taken to the appointment of Sir John Macpherson to the chair of psychiatry. It is possible that the choice is a good one and that the best man has been called to fill a position which seems destined to remain redundant for a considerable time. In the past other men of eminence have come from the old country to take up the leading positions at our medical schools. History reveals that in the majority of instances Australian medicine has gained by the importation of these men. It is not with the fact that an Englishman or a Scot is selected that we quarrel. Our objection lies with the system by which the selection is made. When a professor is wanted in Australia a committee is appointed in London to consider the applications and to advise the Senate concerning the claims of the several candidates. Time was when it would have been foolish to search among our own graduates for men competent to occupy teaching positions of great responsibility and importance. In those past days the majority of the candidates were resident in Great Britain or Ireland and it was not inexpedient to seek from competent judges in the metropolis of the Empire information and advice concerning these candidates. Our medical schools have not stagnated, but have grown in stature and intellectual strength. Many of our graduates have gone forth and have gained laurels in the mother country and occupy high positions in the world of science. Many of them have earned eminence as teachers. The foundation of their success was laid in our Australian Universities, despite the small opportunity offered for the carrying out of original investigations and despite the absence of example that might have incited them to conduct research work. It cannot be denied that at the present day our own universities are able to produce men fitted to lead and to teach the rising generation of students. Why, then, should the selection committee sit in London? Why should an Australian candidate submit his applications to a company of strangers, who have no further guide as to his ability and suitableness than his published papers? Surely the Australian graduate in Australia is handicapped in the competition, for, owing to the poverty-stricken facilities for research at our universities, his articles on original observations are unlikely to attract as much attention as those of his enterprising colleagues at the other side of the world. In every branch of medical thought there are experts in our midst who, given reasonable opportunities, could compete successfully with their contemporaries at home. It would seem that the original reason for transferring the selection of candidates for professorial honours to England was that a large majority of the candidates were in the United Kingdom and consequently it would be easier to ascertain the fitness of each in their country of residence. If the selection were recalled to Australia the balance would probably be in favour of the Australian candidate. But even if the Australian graduates applying for these positions were still in the minority, their number would be sufficiently large to justify a reversal of the policy. The exceptional man trained and resident in the United Kingdom would be recognized in Australia; his achievements would be known and his suitability would be assessed at a fair valuation. The unknown man from the other side would have to submit to the circumstances. His chances of success should be jeopardized rather than those of our own graduates.

The usual reply to criticism of this plan of appointing a professor is that the actual choice is made by the Senate or Council or by some committee appointed *ad hoc*. But history reveals that the advice of the selection committee in London is followed and that too much influence is exercised by

that advice on the minds of the gentlemen claiming to appoint the professor. Moreover, the old system has become unnecessary. Its retention, even if adequate safeguards were introduced, savours of unfairness to our own graduates. On two occasions Australian graduates have been appointed to chairs in the Faculty of Medicine at the University of Sydney. This sane act evoked the hope that at last the days of spoon-feeding were over and that the Senate or Council would shoulder the full responsibility without seeking to share it with others far away. Unfortunately, these hopes have not been fulfilled. It would not be in the best interests of our schools of medicine were others than Australians excluded from applying for the chief positions. The Faculty or the Senate or Council could cause advertisements to appear in the medical press in the United Kingdom as well as in Australia inviting persons with the necessary qualifications to apply for the professorial positions. The applications should be considered in Australia. The best man would be chosen impartially. At present the Australian candidate labours under a distinct disadvantage. He is a mere cipher, an unknown number. If the selection and election were conducted on rational lines, proper allowance would be made for the intellectual attributes of our own men and consideration would be given to the ability of each candidate to instruct young Australian students.

THE SCIENTIFIC PRESS OF AUSTRALIA.

EIGHT years ago Dr. J. H. L. Cumpston contributed to the first issue of THE MEDICAL JOURNAL OF AUSTRALIA a brief history of medical journalism in Australia. This history covers a period of sixty-eight years from 1846 to 1914. In the course of these sixty-eight years ten distinct publications have been presented to the medical profession, but only two journals survived the period of initiation. The *Australian Medical Journal* was established in the year 1856 as the property of the Medical Society of Victoria and in 1880, on the establishment of the Victorian Branch of the British Medical Association, it was taken over by that body. The *Australasian Medical Gazette* was founded privately in 1881 and was acquired by the New South Wales Branch of the British Medical Association in 1894. In the early days the scope and the demand for one or more medical journals in Australia were limited. The medical profession was relatively small and was largely recruited from the mother country. Its members had more reliance in themselves than in their contemporaries and in consequence preferred to learn from the writings of the contributors to British medical journals. The scope was narrow, for few opportunities were offered to medical practitioners to become trained in medical journalism and the material available was probably of moderate quality and restricted quantity. With the growth of the medical profession came changes which affected the position of medical journals. Australian graduates naturally demanded more and more from the profession in Australia and naturally lent their aid to an increasing extent to the existing local publications. The success of the three great medical schools as teaching centres created an impulse to amplify the instruction they imparted to students by post-graduate instruction through printed articles in the pages of these periodical publications. In the meantime, the need was felt by the representative organization of the medical profession for means to place on record the scientific and sociological work of its members. Little by little it became apparent that the various objects of a medical journal could be more easily achieved if the undivided support of the profession were given to one journal than if this support were distributed among two or more.

In 1914 the beginning of a new era in medical journalism in the Commonwealth was established. The costliness of the undertaking had in the past sounded the death-knell of the majority of ventures. For the first time editorial and managerial offices were established and a permanent organization was founded on which a large superstructure could subsequently be built. The time for the change was unfortunate, for one month after the appearance of the first issue war was declared and for the following four and a half years every undertaking was carried on under difficulties and strain. The financial aspect of a medical journal has changed completely since the outbreak of war. Printing, paper and office expenses soared; the price of labour, at all events, will not return to the pre-war level.

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Analysed by THE MEDICAL JOURNAL OF AUSTRALIA.

During the eight years since July 4, 1914, the attitude of the medical profession in the Commonwealth toward the only medical journal in the Commonwealth has changed. To-day but few desire to publish their articles elsewhere. The demand on the space in the pages of THE MEDICAL JOURNAL OF AUSTRALIA increases steadily year by year and the number of readers, both professional and lay, is growing by leaps and bounds. The rules of the International Association of the Medical Press are rigidly observed, so that members realize that no article that has appeared elsewhere or that has been offered to another journal, is accepted for publication. From time to time critics have complained that too little space is devoted to what is termed clinical material. There have been rumours of the establishment of an independent clinical journal. The truth is that there has been no response to repeated invitations addressed to those in charge of the records of the large metropolitan hospitals for more reports of cases written for the purpose of teaching. As soon as the medical superintendents and registrars in these institutions are prepared to collect and arrange records of this kind, provision will be made for prompt publication.

THE MEDICAL JOURNAL OF AUSTRALIA embarked a year ago on the first step in the programme of expansion. By the installation of a modern type-setting and composing plant, the size of the issues has been increased and the printing greatly improved. Further expansion will be needed in the immediate future, so that the journal may fulfil its functions more adequately and provide the medical profession with more and better material. Primarily it serves as a scientific publication and the value of the contributions has already been recognized in all parts of the world. The form of presentation demands special care in type-setting and printing and the possession of unusual equipment. In the future the proprietors of the journal should hold the reputation of being the most expert printers and publishers of scientific works.

Australia has to-day a handful of scientific publications. Many of them rarely come into the hands of the medical practitioner. The Australian National Research Council, an institution recently formed for the general furtherance of scientific knowledge, is about to issue a periodical review of articles published by scientists in the various parts of Australia. Authors of papers dealing with scientific subjects are being requested to provide an abstract of about one hundred words for inclusion in *The Australian Science Abstracts*. The Editor-in-Chief is Dr. A. B. Walkom, Linnean Hall, 23, Ithaca Road, Elizabeth Bay, Sydney, to whom the abstracts should be addressed. It is the intention of the organizers to publish abstracts of all papers published in periodicals such as the *Proceedings of the Linnean Society* and the *Proceedings* of the Royal Societies of the several States, as well as other purely scientific magazines and abstracts of selected articles appearing in publications which accept a more varied class of papers. THE MEDICAL JOURNAL OF AUSTRALIA should be closely associated with this undertaking, since its aims include the endeavour to secure a foremost position in the scientific literature of the Commonwealth.

DIABETES INSIPIDUS AND THE PITUITARY GLAND.

THE clinical entity, known as *diabetes insipidus*, characterized by the passage of large quantities of pale urine of low specific gravity, free from albumin, sugar or casts and usually accompanied by intense thirst, has long been an interesting field for scientific investigation. The disease was first accurately described by Frank in 1794. It was he who recognized the chronicity of the condition, the polyuria and the absence of any demonstrable renal lesion. Many observers have sought the key to the mystery by studying experimental polyuria in animals. In 1849 Claude Bernard showed that there was a point in the floor of the fourth ventricle of the brain just in front of his "glycosuric" centre, injury of which caused the appearance of a polyuria. Eckhard in 1872 succeeded in producing a polyuria by stimulating certain points that he had described in the floor of the fourth ventricle and in the cerebellum. He further proved that the vagus nerve had no influence on the excretion of urine and produced polyuria by section of the great splanchnic nerve in dogs. Kahler in 1886 produced permanent polyuria by injecting minute quantities of silver nitrate into the *corpus trapezoides* of the *pons varolii* and the lateral part of the exposed portion of the *medulla oblongata*.

It has long been recognized that *diabetes insipidus* may follow some lesion of the base of the brain. Thus Stoermer stated that traumatism of the brain was the cause in 30% of cases. Both Leyden and Ollivier pointed out that cerebral hæmorrhage was occasionally an antecedent of the condition, while

many other observers have noted the apparent causation by malignant growths, syphilitic gummata or tuberculous nodules situated usually in the floor of the fourth ventricle or its immediate vicinity. Fresh interest was awakened in *diabetes insipidus* in 1913 when von der Velden in Germany and Ferrani and Cecceroni in Italy reported the remarkable results that they had obtained by the administration of pituitary extract in patients suffering from this condition. They found that thirst and polyuria were promptly controlled for a temporary period.

An interesting study of *diabetes insipidus* has been published by Drs. James F. Weir, E. Eric Larson and Leonard G. Rowntree.[1] They have investigated fifteen cases and have made some experiments with dogs in regard to urinary excretion and pituitary gland extract. The fifteen patients were observed during a period of two years at two different clinics. One patient had a supra-tentorial brain tumour, one had an hypophyseal tumour, four had syphilis and in nine no definite cause could be assigned. Anti-syphilitic treatment failed to produce any significant effect on the course of the disease. In three patients the onset of thirst was definite and sudden, while in two of these the thirst developed prior to the polyuria. The amount of urine excreted varied from three to fourteen litres a day. The specific gravity of the urine varied from 1,001 to 1,004. Intermittent albuminuria appeared in three patients, but in none was there any demonstrable glycosuria. The excretion of phenol-sulphone-phthalein and the values for blood urea, creatinin and uric acid were uniformly normal. Pituitary extract was administered with the catheters reaching to the pelves of the kidneys and resulted in a control of the polyuria and a change in the colour and concentration of the urine within eight minutes in one case and in ten minutes in a second. Drs. Weir, Larson and Rowntree conclude from these observations that the urinary tract plays no part in the ætiology of *diabetes insipidus*.

The effect of the administration of pituitary gland extract was studied in every case. Immediate results were invariably obtained. The effect, however, was temporary and lasted for periods ranging from a few hours to four or five days. With the decrease in the amount of urine excreted, the specific gravity rose to 1,010 to 1,025 and the colour increased proportionately, saliva flowed more freely, the skin became moist and in most instances sweating occurred. With the diminished desire for water some of the patients complained that the water was "stale" or "flat," while satiety was produced in several with small quantities, such as half a glass. After the effect of treatment with the pituitary extract had passed away, an increase in amount of urine occurred. It was, however, noticed that the intake of water kept pace with the increased excretion. There was also an increase in the patient's weight during treatment and immediately afterwards. This was taken to indicate retention of water in the blood or tissues. The excretion of nitrogen varied slightly during treatment and there was evidence of some chlorine retention.

[1] *Archives of Internal Medicine*, March 15, 1922.

Drs. Weir, Larson and Rowntree investigated the effect of pituitary extract on normal men and found that the subcutaneous injection of one cubic centimetre produced no appreciable effect on either the amount or the specific gravity of the urine excreted. They also studied the effect of administering water by mouth to dogs in amounts corresponding to fifty cubic centimetres per kilogram of body weight and also of injecting pituitary extract at the same time as the water. It was shown that these procedures definitely checked the production of diuresis, although if water was administered, urinary secretion was at a somewhat higher level than normal. Drs. Weir, Larson and Rowntree also state that the influence of pituitary extract in the production of diuresis is independent of the nerve supply of the kidneys. They formed this opinion as a result of experiments with pituitary extract on dogs after section of the splanchnic nerves to both kidneys. The results were in every way similar to those obtained in dogs that had not been operated on. In discussing the anti-diuretic effect of pituitary extract, these observers admit their inability to explain the nature of the action. They were at first inclined to believe that pituitary extract raised the renal threshold for water and caused an hydræmic plethora. They were unable to substantiate this hypothesis.

Among those who have endeavoured to discover the mode of action of pituitary gland extract on clinical polyuria by the investigation of experimental polyuria is Dr. McMicken Hanchett, who has recently published the results of some of his experiments.[1] Dr. Hanchett endeavoured to produce polyuria in dogs by various methods of interference with the pituitary gland. The animals were anæsthetized with ether and the gland exposed by the buccal route. After applying a heated rod or heated paraffin to the exposed gland no definite polyuria occurred, except with one dog. It was subsequently discovered, however, at a *post mortem* examination that the heat in this case had been applied to the *corpora mammillaria* instead of to the pituitary gland. In three dogs treated by pinching or pulling the gland with tissue forceps, there was a rise from a pre-operative average output of urine of 150 cubic centimetres a day to 297 cubic centimetres at the end of the twenty-four-hour period succeeding the operation. As a result of plugging the bone with bees' wax there was no increase. The post-operative output of urine was actually less. Stimulation by electric current produced a polyuria in each of five dogs so treated. In one the increase was from 300 cubic centimetres before operation to 4,200 during the third twenty-four hours. This polyuria lasted six days. In two dogs herniation of the gland through the *dura mater* occurred with a subsequent polyuria. In those dogs in which traction was made on the stalk of the gland and the base of the brain, a polyuria was caused. The average pre-operative daily excretion was 145 cubic centimetres. On the third day the average amount was 1,003 cubic centimetres. On the fifth day the amount fell to 628, rose again on the seventh day to 907 and fell to 150

[1] *The American Journal of the Medical Sciences*, May, 1922.

cubic centimetres on the ninth day. Intravenous injections of pituitary extract were given to six dogs in whom a polyuria had been produced. In every instance there was a definite increase in the urinary excretion in the twenty-four hours following injection. In three of the animals there was a secondary rise after the effect of the pituitary extract had passed off and a more gradual fall to the pre-operative level. Epinephrin similarly injected into five dogs produced no effect. In reviewing the results obtained Dr. Hanchett points out that the greatest amount of polyuria occurred in those dogs which received stimulation over the *corpora mammillaria*, in those which received electric stimulation and in those in which traction was used. It was not possible to say that the stimulation had been exerted exclusively on the gland. He concludes that experimental lesions of the pituitary gland itself are not constant in the production of polyuria. He points out that experimental lesions of the pituitary gland, similar to those producing negligible excretory changes, when associated with traction on the floor of the third ventricle, produce polyuria.

The endeavour to adjust the evidence offered by all these investigations is a very difficult task. That the pituitary gland is involved is evident, but whether this involvement is of primary or secondary importance cannot be determined at the present time. If the involvement were primary, it would be difficult to explain the absence of polyuria with the presence of gross lesions of the hypophysis and the occurrence of polyuria with little or no hypophyseal involvement.

COMMERCIAL DISINFECTION FOR ANTHRAX.

THE occurrence of anthrax infection of a human being from a commercial article that is sold for every-day use is by no means uncommon. The *Bacillus anthracis* may be conveyed to human beings by goods made of hair or bristles, such as shaving brushes, tooth brushes or nail brushes, or by leather goods made from infected hides. In 1920 a series of twenty-one cases of anthrax infection occurred in England. In every case infection was traced to a shaving brush imported from Japan. Of the twenty-one persons infected, six died, in seventeen cases the diagnosis was confirmed bacteriologically and in fifteen the suspected brushes were found to be anthrax infected. The virulence of infection, with its attendant high mortality, is such as to make commercial disinfection a question of vital importance.

In any disinfecting process that is undertaken during manufacture, two essential points are necessary. In the first place, the method used must be one that will not render the material sterilized unfit for use and, secondly, it must not be unduly expensive in its application.

Hair and bristles may be disinfected by steam under pressure or by a solution of formaldehyde. The Ministry of Health in England advised the use of one ounce of formaldehyde to a pint of warm water for disinfection of shaving brushes. In the case of leather goods steam and formaldehyde methods cannot be used on the raw hides on account of the resulting impairment of the leather from each process.

Dr. Henry Field Smyth has recently discussed the various methods of sterilization and investigated several of them experimentally.[1] Dr. Smyth gives details of the Seymour-Jones method. This method is used chiefly with hides and consists in soaking the hides for twenty-four hours in a 1 in 5,000 solution of bichloride of mercury containing 1% of formic acid, followed by a short soaking in a saturated salt solution. Dr. Smyth states that Tilley has shown that, if the treatment is followed immediately by neutralization with sulphide of ammonium or of sodium, it is usually possible to recover anthrax organisms from treated skins. If neutralization is postponed for several days, the method is effective. The regulations of the Bureau of Animal Industry in the United States of America permit the use of this method, provided the hides are held for two weeks after treatment before neutralization or further use. The Schattenfroh method of disinfecting skins and the "Cyllin" method with horse hair were tested experimentaly by Dr. Smyth. Samples of the materials tested were inoculated with both bacilli and spores, preference being given to cultures in which abundant spore formation was demonstrated by staining. Dry samples of spores were avoided as far as possible. Five strains of anthrax bacilli were used, an old laboratory stock strain, three strains isolated from tannery soak vats and one strain isolated from horse hair. Resistant spores were obtained by preliminary growth on wheat agar.

The Schattenfroh method consists in soaking the skins in a 2% solution of hydrochloric acid and a 10% solution of sodium chloride for forty-eight hours. A piece of inoculated skin was treated in this way and the absorbed solution was then neutralized for half an hour in a 4% solution of sodium carbonate to prevent any acid being carried into the cultures. The piece of skin was then washed, cut into half and incubated in bouillon and dextrose-serum-bouillon. Uniformly sterile results were obtained with all pieces of inoculated skin treated in this way. It was shown that skin treated by the Schattenfroh method could be made into satisfactory leather.

The "Cyllin" method tested by Dr. Smyth was that recommended by English authorities in 1912. A mass of horse hair was covered with a suspension of anthrax spores, allowed to stand for two hours at room temperature, drained, covered and allowed to stand for two days in order to dry. It was then covered with a 2% solution of "Cyllin." This was allowed to stand at 36.7° C. (98° F.) and samples were removed at intervals, washed and transferred to bouillon and dextrose-serum-bouillon. The experiments showed that a 2% solution of "Cyllin" failed to kill anthrax in four days at 36.7° C..

[1] *The American Journal of Hygiene*, September-November, 1921.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

Action of Diuretics.

A. R. CUSHNY AND C. G. LAMBIE (*Journal of Physiology*, August, 1921) have investigated the effects of certain diuretics on the kidney. By an ingenious arrangement of cannulæ and clamps it was possible to make observations on the amount of blood flowing through the kidney after the injection of various diuretics as well as to determine the amount of urine secreted in any given time in the living animal. With the diuretics examined, the increase in the urine appeared to depend directly on the blood flow through the kidney only in the case of the pituitary extract. Here the diuresis set in with the acceleration in the venous flow and passed off as the acceleration disappeared. The action may be attributed to the improved circulation in the kidney. Under caffeine the diuresis begins before the accelerated flow and lasts long after it has become normal. The action is thus not dependent on changes in the blood supply, but on changes in the renal cells. This has been assumed to be the action by a number of investigators, who have generally located it in the epithelium of the tubules. But the chief effect of the purin diuretics is by common consent an increase in the water of the urine, while the solids are relatively slightly augmented. This seems to point to an action on the glomerular capsule rather than on the tubules. The simplest view which reconciles the observations is that caffeine causes diuresis by reducing the resistance to filtration through the glomerular capsule by a specific action on its cells. The diuresis from salts and urea is not necessarily accompanied by acceleration of the renal blood flow, though this may accompany it in the beginning and presumably favours its occurrence. One of the chief factors is the hydræmia, which reduces the osmotic resistance to filtration by diluting the colloids; another is the difficulty of re-absorption of these bodies through the tubules. Adrenalin lessens the blood supply and thus the secretion of urine. Strophanthin had no diuretic effect in these experiments, nor did it alter the circulation through the kidney in moderate doses, while larger doses increased the blood pressure, slowed the renal blood flow and lessened the secretion of urine.

Vaso-Constriction from Warmth Stimulation.

E. G. MARTIN AND L. A. JACOBY (*American Journal of Physiology*, 1922, Volume LIX.) have investigated the well-known fact that when a person enters a warm bath there very commonly developes immediately thereafter a pronounced contraction of the *erector pilæ* muscles, commonly called "goose fleshing," accompanied by a very decided feeling of chilliness, particularly in the small of the back. The "goose fleshing" is often very conspicuous, particularly in the arms and on areas of the legs not immersed. These observers found that the condition comes on with great promptness, developing within five seconds after immersion and enduring approximately forty-five seconds. These facts suggested that there was a concurrent vaso-constriction, since, in general, conditions that induce "goose fleshing" or a feeling of chill are those which also favour vaso-constriction. It was considered that if a fall in temperature in the small of the back could be demonstrated immediately after entrance to a warm bath, the development of a vaso-constrictor reflex following stimulation of a large number of warm spots would seem to be demonstrated. A very sensitive bolometer was applied to the small of the back and it was found in nine out of eleven experiments that immersion of the lower part of the human body in water at about 42° C. was followed in seven seconds on the average by a fall in temperature of the skin of the small of the back averaging slightly less than 0.2° C. The authors interpret these findings as evidence that a large volume of nervous discharge, due to stimulation of a great many receptors for warmth, elicits, typically, reflex vaso-constriction. The subsequent vaso-dilation in the warm bath is due to the rise of the temperature of the blood.

Adrenalin and Respiration.

IT has long been known that adrenalin, when injected into an animal, induces a profound change in respiration, but no serious attempt has been made to determine the cause of the respiratory variations. F. ROBERTS (*Journal of Physiology*, November, 1921) has endeavoured to determine the method of action, using rabbits and cats as animals for experiment. The common supposition that the adrenalin has a direct action on the respiratory centre is purely hypothetical. In the rabbit, when doses of adrenalin of the order of one cubic centimetre of a 0.01% solution are injected intravenously, the changes in respiration are three in kind. There is invariably a rapid diminution in depth, usually proceeding to a pause of about twenty seconds' duration. The pause may be followed by typical Cheyne-Stokes respiration, which gradually merges into respiration of the regular type. There is a well-marked tendency to change in the rate of respiration. When the respiration is resumed after the pause, it is resumed at a rate quite different from the original rate; it is usually faster. In the cat the results are more or less the same. With doses which are too small to produce the full effect, respiration is diminished in depth and also in rate. Means were employed to prevent alterations in the blood pressure and it was found that the respiratory changes still took place and that they were mainly central in origin. They are caused by sudden anæmia of the respiratory centre due to vaso-constriction. There is no evidence that adrenalin causes afferent nervous impulses from the periphery.

The Internal Secretion of the Pancreas.

F. G. BANTING, C. H. BEST AND J. J. R. MACLEOD (*American Journal of Physiology*, 1922, Volume LIX.) have endeavoured to prepare extracts from the pancreas which would show in a satisfactory manner the presence of the internal secretion which is supposed to control carbo-hydrate utilization in the body. The experiments started on the assumption that the usual extracts of the pancreas do not satisfactorily demonstrate the internal secretion, because this is destroyed by the digestive enzyme also present in such extracts. They took advantage of the fact that the acinous, but not the insular, cells become degenerated in seven to ten weeks after ligation of the ducts. A neutral or faintly acid extract of the degenerated gland was therefore prepared and its effect on pancreatic diabetes investigated. This extract, injected intravenously or subcutaneously, invariably caused a marked reduction in the percentage of sugar in the blood and of the amount of sugar excreted in the urine. Further investigations have shown that incubation of the extract in alkaline reaction for two hours with pancreatic juice removes its effect. Glucose given intravenously or by mouth is retained by a diabetic animal if adequate doses of the extract are also administered and the clinical condition of the animal is improved.

Water Ingestion and Blood Pressure.

J. B. ORR AND I. INNES (*The British Journal of Experimental Pathology*, April, 1922) have studied the effect on the blood pressure of increased ingestion of water. They examined two normal, healthy subjects, two subjects with a pressure above normal, but with no evidence of a kidney lesion and fourteen patients with a definitely raised pressure. The systolic and diastolic pressures were determined for several days previous to the experiment and care was taken to observe the pressure always at the same hour of the day. The addition of two to three litres of water to the daily normal consumption is followed by a distinct fall in both systolic and diastolic pressure. The fall is not accompanied by an increase of either the rate or force of the heart beat and the decreased pressure is maintained for some time after the extra water has been excreted. Reasons are put forward in support of the suggestion that the chief factor in producing the fall of pressure is the elimination of pressor substances that cause arterial constriction. When diuresis is unable to keep pace with the intake of water, especially in cases of high arterial tension, the fall in pressure is sometimes preceded by a rise beyond the original level, which persists until the bulk of the extra fluid has been eliminated.

BIOLOGICAL CHEMISTRY.

Food Value of Gelatine.

R. ROBISON (*Biochemical Journal*, January, 1922) has made a study of the nutritional value of gelatine in relation to the nitrogen requirements of man. His experiments were made on himself, a man, thirty-seven years of age, medium build, weight fifty-nine kilograms and height 173.5 centimetres. He took a diet containing about 0.3 gramme of nitrogen and equivalent to 2,000 to 3,000 calories daily over a period of seven days. As a result the nitrogenous excretion in the urine reached a constant figure of two grammes daily, while the amount in the fæces was 1.1 grammes daily. In the investigation the basal diet was supplemented with different quantities of gelatine over ten days, the nitrogen in the basal diet being kept absolutely constant. The diet consisted of corn starch, lactose, sucrose and a salt mixture. Lemon juice, cod liver oil and agar were added to supply vitamins and to prevent constipation. The gelatine used in the tests was subjected to analysis and contained about 0.5% of tyrosine. The author has endeavoured to ascertain whether the minimal nitrogen loss on an abundant nitrogen-free diet can be still further reduced by gelatine and, if so, what relation the amount of this reduction bears to the amount of gelatine. The author found that gelatine is capable of sparing nitrogen loss. The amount of spared nitrogen bore, however, no simple relation to the amount of gelatine ingested. On the contrary, the author found a constant ratio between the nitrogen balance and the amount of creatinine nitrogen. From this result he has concluded that the action of gelatine consists in the reduction of the waste of amino-acids derived from body protein through de-aminization and subsequent oxidation. The amino-acids of the gelatine and the ammonium and urea formed from these amino-acids play a part in reversible reactions that are constantly proceeding in the body between amino-acids, non-nitrogenous ketonic or hydroxy-acid and ammonium and urea. If this hypothesis is true the loss of body nitrogen when both carbo-hydrate and gelatine are fed may represent a nitrogen minimum that corresponds more closely with specific nitrogen needs of the body than does the output on carbo-hydrate alone.

Vitamins for Chickens.

R. H. A. PLUMMER, J. L. ROSEDALE, A. CRICHTON AND R. B. TOPPING (*Biochemical Journal*, December, 1921) have succeeded in rearing young chickens in confinement under laboratory conditions. There is a widespread belief among raisers of poultry that young chickens cannot be reared under the artificial conditions of housing and diet which many laboratory animals tolerate without detriment. Current ideas may be expressed in the statement that birds must be kept on the ground, that they must have exercise, outdoor life and green food. In these experiments the chickens were supplied with the usual protein, carbo-hydrates and fats. No salts were added to the food. Accessory food substances were given in the form of cod liver oil for vitamin A, yeast or "Marmite" for vitamin B and lemon or orange juice for vitamin C. The diet was made up of oatmeal and milk and no allowance was made for vitamins in these foods. Water was freely provided. With the food supplied, twenty-one out of twenty-four chickens were reared to maturity, two died from lack of vitamin B and one was killed accidentally. In a later test nine birds were brought to maturity. The experiments were conducted in periods, changes being made from time to time. The results show that chickens are susceptible to an insufficiency of vitamin B in the diet. The amount of vitamin B required seems to run parallel to the quantity of carbo-hydrate and fat in the diet. It may be represented as one gramme of "Marmite" per sixty grammes of oatmeal and per ten cubic centimetres of cod liver oil daily. This amount serves for twenty-two birds. For the same number of birds ten cubic centimetres of cod liver oil and sixty cubic centimetres of lemon juice daily are sufficient. The chickens were fed from the third day after hatching. The authors believe that weakness of the legs in chickens is due to insufficiency of vitamin B in their diet.

Bone Lesions in Beri-Beri.

P. G. SHIPLEY, E. V. MCCOLLUM AND N. SIMMONDS (*Journal of Biological Chemistry*, December, 1922) have described the changes in the bones of rats fed on diets so constituted as to cause uncomplicated beri-beri or polyneuritis. These authors have been surprised to find in rats suffering from polyneuritis induced by diets deficient in the water-soluble vitamin B that the histological appearances of the bone are exactly identical with those found in guinea-pigs suffering from uncomplicated scurvy. The rats have been fed on a diet of purified food substances lacking only in the antineuritic water soluble vitamin. It consisted of casein, butter fat, dextrin, agar and inorganic salts. The rats gained in weight for three weeks, after which they began to decline. At autopsy (forty to sixty days) the body tissues have been found atrophic, but there has been no deformity of the skeleton and no noticeable enlargement of the extremities of the bones. The picture of the bones seen through the microscope has been indistinguishable from that seen in the bones of guinea-pigs affected with scurvy. The bones are shallow and stain intensely with basic dyes. The cells in the narrow proliferative zone are flattened in the direction of the long axis of the bones. All signs of growth have disappeared. The blood vessels of the marrow are crowded with red blood corpuscles. In many places the vessels have ruptured and numerous small and large hæmorrhages abound. When rats have been fed on the diet producing scurvy and similar bone lesions in guinea-pigs, the rats make normal growth. These results leave no room for doubt that the rat can dispense with the water soluble anti-scorbutic vitamin.

Sulphur in Urine.

R. ROBISON (*Biochemical Journal*, January, 1922) has investigated the methods for estimating total sulphur in urine. This estimation needs to be performed with accuracy, otherwise the amount of "neutral" sulphur, which is based on the difference between the quantity of total sulphates and total sulphur, is of little value. The author has found that the method of Denis yields results that are too low. This is due to decrepitation and to the fact that the use of coal gas for igniting the residue appreciably increases the amount of sulphur in the residue. He finds that the addition of copper chloride to copper nitrate prevents spattering and that the nitrate can be completely decomposed by heating the residue over a small spirit stove. The nitrate and chloride of copper are dissolved in water and some of the solution is added to the urine. The mixture is evaporated to dryness and then ignited over spirit in a sound tin. Two series of estimations with varying amounts gave concordant results. Finally, the method has been tested on a solution containing known quantities of cystin, urea and sulphuric acid. The results showed an accuracy to within less than 1%.

Secretion of Milk.

E. ROTHLIN, R. H. A. PLUMMER AND A. D. HUSBAND (*Biochemical Journal*, December, 1921) have made some investigations of the action of hypophysin, ergamine and adrenalin upon the secretion of the mammary gland in goats. The substances were injected into the back subcutaneously usually one or two hours before milking. Two goats were used, one had two kids in June, 1920, the other one kid in February, 1920. The tests were made in September and October, 1920, in two periods. In the first period injections were made at intervals of one or two days; in the second period an interval of seven days between each injection was followed by injections at frequent intervals. The goats were milked by hand, usually three times daily. The daily amount of milk was recorded and daily analysis undertaken. The results show that hypophysin produces an increased flow of milk only in the first stages of lactation. This increase is rapid and considerable, but of short duration. It is followed by a period of lessened secretion. As a consequence, the daily supply of milk is not altered by the injection of hypophysin and the quality of the milk secreted is similar to the normal milk of the animal. From these results the authors conclude that hypophysin has an indirect action through the organs of reproduction. Neither ergamine nor adrenalin affects the secretion of milk and the authors infer that the mammary gland contains neither sympathetic nor para-sympathetic fibres.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Queensland Branch of the British Medical Association was held at the B.M.A. Building, Adelaide Street, Brisbane, on May 5, 1922, DR. D. A. CAMERON, the Vice-President, in the chair.

Preventive Medicine in Obstetrics.

After DR. E. S. MEYERS had exhibited several pyelograms DR. R. MARSHALL ALLAN, M.C., read a paper on the need for ante-natal clinics (see page 53).

DR. E. S. MEYERS read a paper entitled "Some Aspects of Puerperal Mortality and Morbidity" (see page 54).

DR. L. T. WINTERBOTHAM read a paper entitled "Drug Treatment in Obstetrics" (see page 56).

DR. A. H. MARKS referred to the need for pre-natal work in private practice. The heart, the chest and the kidneys of every pregnant woman should be examined. Every active venereal infection should be treated, but he doubted whether it would be necessary to perform the Wassermann test with the blood of every patient and whether treatment should be instituted in every woman whose blood-serum yielded a reaction. He also expressed the opinion that routine pelvimetry was not required in Queensland, as contracted pelvis was relatively rare. It should be undertaken if the examination of the patient indicated its need. He considered that post-graduate work at the Lady Bowen Hospital would be very useful.

In his opinion, Dr. Meyer's scheme of two nurses was more dangerous than the old type of midwifery nurse, whose knowledge was limited. He did not consider that puerperal sepsis was always due to a vaginal examination by a medical practitioner or by a nurse. In many instances sepsis occurred in women who had neither been examined nor had any operative interference.

DR. J. A. CAMERON agreed with Dr. Allan in regard to the necessity for the careful supervision of patients during pregnancy. He was doubtful if highly trained nurses were really necessary. In his own practice he had to depend mainly on those with limited training. He concurred that contracted pelvis was very rare in Queensland. Even after the most accurate pelvic measurements had been taken, it was impossible to anticipate the amount of moulding that would occur. The causes of death in his own practice were eclampsia in six women, sepsis in four and hæmorrhage in five out of a total of three thousand women. The death-rate from eclampsia could be reduced, as the majority of the six women had had no previous treatment.

Dr. Cameron had not found that the use of pituitary extract rendered the application of forceps unnecessary. If it were given at the end of the second stage the third stage was usually a quick one. He administered ergot later, in order to keep up the action. The use of ergot and strychnine in small doses three weeks before labour was of value when there was a history of previous trouble in the third stage. He asked Dr. Winterbotham if he had found chloroform useful in prolongation of the first stage. He was always suspicious of an occipito-posterior presentation when the first stage was prolonged.

DR. A. C. F. HALFORD stated that if the *os uteri* did not dilate normally, there was, as a rule, a mal-position of the nature of an occipito-posterior presentation. In his experience occipito-posterior presentation had been as frequent as occipito-anterior, especially in the early stages of labour. If the condition were left to Nature the posterior position usually converted itself. Dr. Halford stated that there was no satisfactory explanation of the cause of puerperal sepsis. Bonney had regarded the anal region as the chief source of infection, but he disagreed with this view. Pathogenic organisms lost their power when they got away from their habitat. The organisms in the cervix were different. Auto-infection played a large part in these cases, but it was not the whole explanation. Dr. Halford considered that the transmission of organisms by the husband during the later months was a frequent cause. The doctor and the nurse were often unjustly blamed, but medical practitioners should take steps to prevent contamination of one patient from another previously attended. He did not agree with Dr. Cameron that a nurse with only an elementary training was better than a well-trained one. Nurses needed a longer period of training.

DR. C. A. THELANDER referred to the case of a woman whose urine he had frequently examined. He had tested the urine for albumin by boiling and adding acetic acid. No precipitate had formed. Toward the end of the pregnancy he applied the nitric acid test and a cloud of albumin had separated. He had taken precautions, but the woman had died of eclampsia twelve hours after labour. Since then he had always verified the result of the acetic acid test for albumin by the application of another test.

DR. D. GIFFORD CROLL, C.B.E., thought that abdominal palpation was of the greatest value. Pituitary extract was very useful; he had found it effective for the induction of labour at term. Although there were few contracted pelves in Brisbane, they should be on the look-out for an increase owing to the number of English wives of returned soldiers.

DR. E. CULPIN said that he had had good results from the use of "*collargol*" in puerperal sepsis. He referred to the use of pituitary extract as a diagnostic agent of true labour pains. He expressed the opinion that perineal lacerations were not so important a cause of sepsis as injuries to the cervix and uterus. The great factor in sepsis was not instrumental delivery, but was retention of placental fragments in the uterus due to the improper conduct of the third stage.

DR. A. J. REYE referred to the use of "flavin" in a dilution of one in one thousand as an antiseptic in puerperal sepsis.

DR. F. C. BECHTEL stated that many nurses, especially the older ones, never examined the urine and ridiculed the idea when questioned by patients.

DR. A. GRAHAM BUTLER, D.S.O., referred to the difficulty of obtaining admission of women during the course of pregnancy for ante-natal observations into the Lady Bowen Hospital. He thought that the medical profession should educate the public that the Lady Bowen Hospital was not performing its proper functions under the present conditions. He considered that abdominal palpation was of great assistance. In regard to sepsis Dr. Butler stated that if a virulent infection occurred in the practice of a medical practitioner he should look out for others in the hospital, in the nurse's practice and in his own practice. If lacerations and tears were not dealt with by antiseptics they were liable to cause serious mischief. He asked leave to present a motion in connexion with the Lady Bowen Lying-In Hospital for Women.

THE CHAIRMAN ruled that notice of motion was required and DR. BUTLER gave notice that he would move at the next meeting.

DR. J. B. MCLEAN, D.S.O., referred to the large number of women suffering from hyperemesis, albuminuria, eclampsia and *ante partum* hæmorrhage who were admitted to the General Hospital because there was no room for them at the Lady Bowen Hospital. He considered that patients should be admitted to the latter hospital for abortion and for extra-uterine pregnancy.

In his reply, DR. MARSHALL ALLAN stated that he had not expected much criticism. He thought that the training of nurses could be lengthened with advantage. The most difficult lessons that they had to learn were the necessity of refraining from frequent vaginal examinations and the correct method of conducting the third stage. Abdominal palpation was of the utmost use, not only during pregnancy, but also in labour. It obviated to a large extent vaginal examinations. Routine internal pelvimetry was not necessary, except when suspicion of a contracted pelvis existed. The technique was beyond the average practitioner and his results would be too inaccurate to be of any use. He strongly condemned Dr. Meyer's suggestion of Cæsarean section after forceps had been tried. He referred to the findings of Eardley Holland and Munro Kerr after a review of 4,000 Cæsarean sections in Great Britain. The maternal and fœtal mortality when forceps had been used before Cæsarean section was 27% and the early mortality of infants surviving birth was 11%. This could only be reduced by increased ante-natal work and by earlier antici-

pation or discovery. Cæsarean section should be decided upon before and not late in labour. The present trend of obstetrics, especially in America, seemed to be surgical. While experts might get good results, the old policy of masterly inactivity was still the better plan for the average practitioner. In his experience pituitary extract had largely obviated the use of forceps. At the Rotunda Hospital the number of deliveries by forceps had been halved in the year following the introduction of pituitary extract. There was a danger of uterine atony if more than an hour elapsed between the injection of the drug and the birth of the child. This, however, could be overcome by another dose.

DR. E. S. MEYERS, in his reply, stated that he considered that the partially trained midwife usually interfered with their patients to an undue extent. Even when the urine was examined once a month, the practitioner would fail to detect pre-eclamptic conditions from time to time. He did not think that many practitioners used abdominal palpation for diagnosis during labour. The causes of maternal and fœtal death in the presence of minor degrees of contraction were to be sought in the prolonged use of forceps. He was of opinion that sepsis as a contra-indication to Cæsarean section was a bogey. There would be an improvement in the mortality and morbidity when labour was recognized as a surgical condition. He trusted that a clinical pathologist would be appointed to the staff of the Lady Bowen Hospital. There was a great need for a central admitting board, who could arrange for the admission of women suffering from mastitis and nursing their infants. These women could not gain admission to a hospital under the existing conditions unless the infant were weaned. He thought that the State should pay medical practitioners for attending outside maternity hospitals women in poor financial circumstances during their labour.

DR. L. T. WINTERBOTHAM was satisfied that pituitary extract had rendered the application of forceps unnecessary in many cases. He held that chloroform inhalation was valuable for overcoming uterine inertia at the end of the second stage. Chloroform was given as a sedative at the end of the first stage, but bromide or chloral were as effective.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Royal Alexandra Hospital for Children, Camperdown, on May 12, 1922, DR. T. W. LIPSCOMB, the President, in the chair.

"Russian Culture."

DR. F. TIDSWELL read a note on the preparation of sour milk, including "Russian Culture" (see page 58).

Oxycephaly.

DR. A. W. CAMPBELL presented a child suffering from a condition which he had diagnosed provisionally as oxycephaly. He pointed out that the child had just been admitted to the hospital and that he had had little opportunity of studying the condition. He showed that the characteristic sugar-loaf formation of the head was present. In dealing with the underlying pathological process of this condition he stated that there was a premature synostosis of the parietal and occipital bones along the line of the lambdoid suture. This precocious welding of the bones prevented growth backwards and in the occipital direction. In compensation overgrowth of the head took place in the frontal direction. The defect of sight in the patient had probably been due to the fact that upward growth of the brain had been excessive. Dr. Campbell referred to the practice obtaining in certain parts of France, more particularly Normandy and Britanny, to produce artificial oxycephaly by bandaging and manual moulding of the head. The result of this practice was an increase in the frequency of epilepsy and insanity. As soon as the facts had been recognized, the French Government had taken steps to prohibit the practice.

The Theraputic Uses of Atropine.

DR. J. MCDONALD GILL presented two patients to illustrate the therapeutic uses of atropine in childhood.

The Schick Test.

DR. MARJORIE J. ROSS presented three patients to illustrate the results of the application of the Schick test. She said that it had been proved clinically and in the laboratory that only those persons who had no antitoxin in their blood or tissues, contracted diphtheria. The antitoxin might be natural or it might have appeared as a result of the injection of diphtheria toxin-antitoxin mixture. This had been known for twenty-five years. The fact, however, that a large percentage of people were naturally protected had prevented any attempts at mass immunization. In 1913 Schick had published an account of a simple test to distinguish those who were protected by antitoxin in the blood, from those who were not so protected. The test consisted of an injection into the skin of a minute dose of diphtheria toxin. Schick had found that the amount required was one-fiftieth of the minimum lethal dose for a guinea-pig weighing 250 grammes in 0.1 cubic centimetre of normal saline solution. Later it had been found that this concentration occasionally produced sloughing. Over 60,000 school children had been subjected to the test during the course of eight years by Park of the Public Health Service of the United States of America. Park had arrived at the opinion that one-fortieth of a minimum lethal dose in 0.2 cubic centimetre of saline solution was a better dose. This was the dose they were using at the Royal Alexandra Hospital for Children. It was necessary to measure the toxin accurately and to inject it entirely into the skin. A raised white patch appeared at the site of inoculation when the toxin was properly administered. As local reactions occurred from the autolized proteins of the bacillus necessarily present in the test solution, a control became necessary. The control solution was the test solution heated to 75° C. for ten minutes. This destroyed the toxin, but not the protein. The control solution was also injected intradermally. Four results could be obtained. They were a reaction, a pseudo-reaction, no reaction and a combination of a reaction and a pseudo-reaction. The reading should be taken four days after the injection. The reaction was the result of an irritant toxin on tissue cells unprotected by antitoxin and indicated that the patient was susceptible to diphtheria. It was recognized by a circumscribed area of redness with a slight infiltration of the skin measuring one centimetre to two centimetres in diameter. It persisted as a rule from seven to fourteen days and on fading was characterized by a superficial scaling and a persistent brownish discoloration. When no reaction appeared, the indication was that the individual had sufficient antitoxin to protect him from diphtheria. This natural immunity was very lasting after the first year of life. It was therefore assumed that a patient who did not yield a reaction to the Schick test, was probably protected for all time. Infants at birth were naturally immune, but during the first few years of life this immunity was lost. Dr. Ross stated that 90% of children between one year and five years of age reacted to the Schick test. Later many regained immunity and the percentage of those reacting diminished with each age group.

The pseudo-reaction, which was a protein reaction, appeared more promptly, covered a larger area and disappeared within three days. Pigmentation was absent or was very slight. When the pseudo-reaction was combined with a true reaction, it might be difficult to determine until the seventh day. At this time the difference between the test and the control would be appreciated. The individual who yielded the combined reactions, gave severe reactions after immunization with toxin-antitoxin mixture.

Dr. Ross stated that they had applied the test to the members of the nursing and resident medical staffs with toxin obtained from the Commonwealth Serum Laboratories. It was put up in glass capsules containing one minimum lethal dose. This dose was diluted with eight cubic centimetres of saline solution and 0.2 cubic centimetre of the mixture was injected into the skin of the right forearm. The same mixture was heated to 75° C. for ten minutes and the same dose injected into the left forearm as a control.

The results obtained had differed in some ways from those obtained in other countries. In England 10% of all individuals and in America 12% reacted to the test. The proportion of children who yielded a reaction at the Royal Alexandra Hospital for Children, was 58%. It appeared,

however, that during the past eight years 43% of the nurses undergoing training had had attacks of diphtheria in the hospital; some had had two attacks. The medical staff consisted of nine resident medical officers. During the year 1921 six of them had had attacks of diphtheria; in three instances the attacks were severe. It would thus seem that the nursing and medical personnel was peculiarly susceptible to diphtheria.

American observers had claimed that the Schick test was capable of distinguishing between true diphtheria and tonsillitis caused by other organisms occurring in carriers of diphtheria bacilli. In the cases of one resident medical officer and one nurse the Schick test had not yielded a reaction when the toxin was injected one day before the signs of the disease had manifested themselves. Dr. Ross expressed the opinion that this matter required further investigation.

In one instance the efficacy of the test had been tested. During an outbreak of wound diphtheria in a ward containing eighteen children, only two escaped. One was an infant and was consequently immune; the other was suffering from empyema and possessed a very low resistance. Neither child reacted to the test.

The Schick test was further used for the purpose of ascertaining the value of immunization with the toxin-antitoxin mixture. It was applied three, six and twelve months after inoculation. It transpired that when the immunization was complete, the children who had previously reacted, no longer did so.

Tendon Transplantation.

DR. R. B. WADE showed two patients with infantile paralysis on whom a tendon transplantation of the *biceps cruri* into the patella had been done and used them as a text to speak of the necessity of selecting cases for operation. He pointed out that the function of the quadriceps during walking was to pull the knee fully into extension during the movement forward of the opposite leg, so as to throw the centre of gravity of the body from behind the knee-joint to a point in front of the centre of that joint. In one of these patients with a completely paralysed quadriceps, both the hamstrings and the extensors of the thigh were in good condition. In the other, the hamstrings were strong, while the extensors of the thigh possessed very little power. In both the transplanted biceps was firmly attached and contracting well.

The patient whose extensors of the thigh were present, was able to walk well and the combined power of the transplanted biceps and the extensors was sufficient to pull the knee-joint back against the body weight, so as to throw the centre of gravity forward of the knee-joint at the required moment. Before the operation the extensors of the thigh alone had been unable to do this and the child frequently fell on attempting to hurry. In the other patient the biceps alone was unable to extend the knee at the required moment; the child had to walk with the leg everted and a hand held on the front of the femur to give it stability.

These cases were brought forward to show the difference between suitable and unsuitable cases for tendon transplantation. It was pointed out that in large hospitals patients were frequently seen in whom the tendon was satisfactorily transplanted into some other position, but for purposes of function it was quite useless.

Lead Poisoning.

DR. E. S. LITTLEJOHN read notes on three cases of lead poisoning (see page 63).

Maculo-Papular Syphilide.

DR. C. NORMAN PAUL showed a child, aged fourteen months, to demonstrate a typical maculo-papular syphilide. He demonstrated the condylomata around the anus and the site of the primary chancre above the ear.

Cutaneous Lesions in Frambœsia.

His next patient had come from Samoa and was suffering from yaws. Dr. Paul gave a brief description of the characters of the skin manifestations of frambœsia. The patient's serum reacted to the Wassermann test. The necrosed papules with yellow crusts were well formed and were quite typical.

Malformations of Hands and Feet.

The third patient presented by Dr. Paul was the subject of congenital malformations of the hands and feet. There was a nævoid condition of the skin.

Habitual Vomiting.

DR. MARGARET HARPER showed several babies to illustrate various types of habitual vomiting in infants. Three babies were suffering from pyloric spasm. In all there was persistent vomiting of a projectile character. Later the vomit had become watery and continuous from one feeding to another, with occasional occurrence of explosive vomiting. There was no evidence of indigestion. The pain had apparently been relieved by the vomiting. In all the patients failure to gain in weight was noticed. Constipation and a diminution of urine were the secondary results of the partial starvation. In severe cases peristaltic waves were usually seen. Dr. Harper stated that this sign had not been present in the three babies shown. She claimed that pyloric spasm might be present without hypertrophy of the muscle, although this was not universally acknowledged. The fact that at operation no tumour had been found on several occasions seemed to confirm the suggestion that spasm might occur alone.

Cereal Feeding.

These three patients had been treated by feeding with thickened cereal food.

The first child was one year of age; its weight was 9.5 kilograms (21 lb.); it had six teeth. The baby had vomited practically ever since birth. Its weight at birth had been four kilograms (eight and three-quarter pounds); at three and a half months it had weighed 3.4 kilograms and at six months 4.3 kilograms. Every effort had been made to keep the breast milk, but as the mere effort of sucking seemed to induce the spasm, the milk had been expressed from the breast and given by spoon. The vomiting had become distinctly less, but unfortunately the supply of breast milk failed. When the child was put on an artificial diet, the vomiting had again become severe. At the age of six months a diet of thickened cereal had been given. The projectile vomiting had ceased and the child gained in weight. It had continued to improve. For six weeks he had been fed entirely on thickened cereal. Then modified milk had been introduced in small quantities. The milk had been given first and the cereal later. The amount of milk had been increased and the amount of the cereal decreased by gradual stages until at the age of nine months the child was taking a diet usual for this age.

The second patient was eleven months of age. At birth it had weighed 4.5 kilograms (10 lb.) and at five and a half months 4.76 kilograms (10½ lb.). When first seen the baby had been off the breast for some days. It had been vomiting severely. The mother had been instructed to put the baby to the breast at regular intervals of three hours and to complement the breast feeding by two to four tablespoonfuls of thickened cereal. The vomiting ceased gradually. The amount of breast milk was then gradually increased. In this way the mother had been able to feed the child partially on the breast until it was nearly eleven months of age. He had then been placed on a diet usual for its age. There was very little vomiting, only occasional light return of watery fluid. The baby had increased in weight at the rate of about 225 grammes a week. Its weight at the time was 8.8 kilograms (19 lb. 6 oz.).

The third baby was thirteen months of age. It had vomited since birth. It had been fed on the breast milk for three months and had then been in hospital for two months. Later it had been in hospital for one month. There had been no gain in weight from the third to the eighth month. Its weight was at the time of the meeting 8.5 kilograms (18¾ lb.).

All these infants had been treated by the usual methods, careful dieting, washing out of the stomach and the like, before they were given thickened cereal. Dr. Harper stated that she had treated seven patients for pyloric spasm within the past twelve months and all had done well. The youngest had been four months of age. All the infants had advanced much more rapidly on this food than on the methods of treatment previously employed. The prognosis was usually good, provided that no intercurrent infection ended the

scene. Her experience had been that the vomiting, constipation and failure to gain in weight continued until the infant was taking solid food.

The food given consisted of the following:

Milk	255.6 cubic centimetres or 9 ounces
Water ..	340.8 cubic centimetres or 12 ounces
Rice flour	3 tablespoonfuls
Dextri-maltose ("Mellin's Food")	3 tablespoonfuls

This mixture was boiled for one hour in a covered vessel. It contained 14.2% of carbo-hydrate, 1.6% of fat and 2.5% of protein. Its caloric value was 84.5 per hundred cubic centimetres (24 calories per ounce). Its nutritive value, calculated as the ratio of protein to fat and carbo-hydrate, was as one is to eight. It had thus a high carbo-hydrate content. Carbo-hydrates left the stomach rapidly and easily. The food contained but a small quantity of milk and was well cooked. Consequently, no hard curds were formed. Its fat content was low and its consistency was thick. It was a concentrated food and consequently the quantity needed was relatively small.

Rumination in an Infant.

DR. HARPER presented a child suffering from so-called rumination. The child was four months of age. It had been fed at the breast every three hours since birth. It was not gaining in weight. At birth it had weighed 3.8 kilograms (8½ lb.); at the age of three months it had weighed 3.9 kilograms; its present weight was 4.7 kilograms (10 lb. 6 oz.). It vomited a great deal and was constipated. The baby was smiling and placid and evinced no sign of pain. After taking food, her lower jaw was rigidly extended and her tongue pushed against the lower jaw. Both sides of the tongue were curved upwards, leaving a deep furrow in the centre running from behind forwards. By rhythmical movement of the jaw and tongue the food was pumped up into the mouth and ran out. The vomiting was not projectile. All the time the infant lay happily and comfortably and had no pain. In the treatment it was found to be necessary to watch the infant for an hour after feeding. She was made to swallow her food again by holding her nose or by holding her jaw, thus preventing the movements. A similar case had been reported by Kerley, who had found it necessary to bandage the jaw.

Artificial Feeding of Infants.

DR. W. F. LITCHFIELD exhibited a preparation known as "New Zealand Cream" which had been introduced by Truby King. Dr. Litchfield stated that Truby King was first and foremost an advocate of breast feeding. When artificial feeding became necessary he advocated a modified milk which was known as "humanized milk." Dr. Litchfield explained the method of preparation of the "New Zealand Cream," which consisted of 50% of fat, including 30% of animal fat and 20% of vegetable fat. The animal fat included cod-liver oil and lard, while the vegetable oil was chiefly almond oil. The advantages of this cream were its constancy in composition, its sterility, its power of keeping indefinitely and the fine state of emulsion of the oils. Modified milk was made up of nine parts of cow's milk, one part of lime water, one part of lactose, ten parts of water and 0.75 part of "New Zealand Cream." Authorities like von Pirquet, Lusk, Taylor and Truby King advocated a low protein concentration for infant food. Von Pirquet had recommended equal parts of cow's milk and water which contained 17% of sugar. Dr. Litchfield presented a baby fed on Truby King's modified milk.

Erythrœdema.

DR. LITCHFIELD also presented a child who was suffering from erythrœdema or "pink disease" and gave a short description of the condition. A full account has been published in an article by Dr. A. Jeffreys Wood in THE MEDICAL JOURNAL OF AUSTRALIA of February 19, 1921. Dr. Litchfield pointed out that its cause was still unknown.

Paroxymal Tachycardia.

DR. LITCHFIELD presented a girl, aged twelve years, who had been admitted to the hospital on January 17, 1922, on account of cardiac symptoms. The child had been treated for a heart complaint at the age of four years and had recently again undergone treatment for similar symptoms. On examination it had been found that the pulse was quick and at times uncountable. There was some dyspnœa. The heart was enlarged. Treatment consisting of rest, digitalis and ammonium bromide had been instituted and the condition had improved. It had been noticed, however, that occasionally, especially after some slight excitement, the pulse rate suddenly increased to about 180 per minute, remained at this level for two or three minutes and then dropped suddenly to normal. At the time of the meeting the heart was slightly enlarged and its beat forcible. The rate of the heart beat was usually eighty a minute, but several times a day, usually when the child showed some slight emotional excitement, the heart suddenly raced at the rate of 180 beats to the minute. During the paroxysm the pulse of the wrist could hardly be felt. The carotid pulse, however, could be easily seen and felt. The attacks lasted for two or three minutes. During the time the child showed no distress and was quite unconscious of the change in the pulse rate. Dr. Litchfield stated that he had not previously seen tachycardia in a child. There was no history of rheumatism and no definite cardiac murmur. But he regarded the condition as rheumatic in origin.

Chronic Intussusception.

DR. P. L. HIPSLEY presented a child, aged seven years, who had been operated on for chronic intussusception of the appendix into the caecum (see page 65).

Grawitz Tumour.

He also showed a patient on whom an operation for a Grawitz tumour of the kidney had been performed (see page 65).

Deformity of Spine.

DR. HIPSLEY read the notes of a child, aged six years, who had been admitted to the Children's Hospital with a diagnosis of Pott's disease. The child had not walked until eighteen months of age. The mother had noticed a lump behind the right shoulder blade when it was three years old. The lump had been increasing in size and during the last twelve months the child had been complaining of pain in the right side. In the family history the only incident of note was that a maternal grandparent had died of pulmonary tuberculosis at the age of fifty-three years.

On examination it was found that there was a well-marked scoliosis with convexity to the right in the upper dorsal region. This portion of the spine projected backwards, with the result that there was an evident kyphosis. No evidence of tuberculosis was detected in the skiagram. The deformity was evidently due to a congenital malformation of the spine arising from one of the vertebral bodies being wedge-shaped. No reaction resulted from the von Pirquet test. This supported the diagnosis that the lesion was not tuberculous. In commenting on the case Dr. Hipsley pointed out that the defect had only become apparent when the delay occurred in walking. The curvature was therefore in part the result of the super-imposed body weight acting on the defective spine and in part the result of asymmetrical growth caused by the malformation.

Pneumococcal Peritonitis.

DR. HIPSLEY next showed a female child, aged five years, who had been admitted to the Royal Alexandra Hospital for Children on September 17, 1921. She had been taken ill suddenly two days before, the onset being characterized by severe abdominal pain, vomiting and fever. The medical practitioner who saw the child some hours after the onset, had diagnosed gastritis. On the following day the child had been sent to the hospital with the diagnosis of probable acute apendicitis. On admission the abdomen had been found to be slightly distended. There had been general tenderness, most severe over the lower part of the abdomen. The pulse rate had been 140 in the minute and the temperature 37.7° C. (101.8° F.). The child had been subjected to operation. The usual grid-iron incision had been made as for the removal of the appendix. When the abdomen had been opened it had been seen that the peritoneum contained free pus. The whole of the peritoneum was thickened and inflamed and it had been determined that the appendix was not the cause of the trouble. The appendix had not been removed. A drainage tube had been inserted and the wound closed around it. Fifty cubic centi-

metres of anti-pneumococcic serum had been given on the same day.

The child's condition had remained very grave for some time after the operation. On the third day twenty cubic centimetres of polyvalent pneumococcal serum were given intra-muscularly. Altogether 250 cubic centimetres of the serum had been given in a period of ten days. There had been a distinct improvement after the administration of the serum. Three weeks after the operation an empyema developed, which had been opened and drained after portion of the ninth rib had been resected. A little later two large abscesses had been discovered, one in each thigh. Each had contained over 300 cubic centimetres of pus. The child had progressed rapidly toward recovery after the evacuation of the pus.

In discussing the illness, Dr. Hipsley pointed out that the following were characteristic of a pneumococcal peritonitis: sudden onset, female sex of the patient, the age of the patient being under five years, the peritonitis beginning in the pelvis and the relationship of the condition to unhygienic surroundings. The majority of patients suffering from pneumococcal peritonitis died. Two other children who had been admitted to hospital during the same week, had been treated in the same way had succumbed to the disease. Early drainage was indicated. He had formed the opinion that while the serum had not prevented the development of an empyema it had aided in the recovery.

Dr. Hipsley also referred to the case of a girl, aged three years and nine months, who had been admitted to hospital on account of attacks of retention of urine associated with pain, fever and vomiting. Nine months previously the child had had an illness which had been regarded as influenza. An attack of retention of urine had occurred at that time. Similar attacks had recurred every three or four weeks. When the child was admitted she appeared to be in great pain. Her temperature was 38.3° C. (101° F.). There was tenderness over the lower part of the abdomen, especially in the right iliac region and pain on urination. A diagnosis of appendicitis had been made, as the bladder symptoms were thought to be due to the tip of the inflamed appendix coming in contact with the bladder. The child had been kept under observation for four days. At the end of this time a mass had been detected in the right iliac region and it had been thought that the diagnosis was confirmed thereby.

An operation had been carried out, the incision being similar to that usually made for the removal of the appendix. When the peritoneal cavity had been opened pus had been encountered. The abscess had been drained and had closed three weeks later. The child had made a good recovery. Pneumococci in pure culture had been recovered from the pus. Dr. Hipsley called attention to the interesting sequence of events in this case. The child had suffered from several attacks during the course of nine months. The last attack had for some inexplicable reason culminated in an abscess. The age of the child was below that usual in pneumococcal peritonitis. Dr. Hipsley stated that a localized pneumococcal peritonitis was very rare and that he could not account for the sequence of events in any other way than by assuming that the infection had spread from the vagina through the Fallopian tubes to the pelvic peritoneum.

Talipes Equino-Valgus.

DR. HIPSLEY'S last patient was a child, aged nine years, who had been admitted to the Royal Aleandra Hospital for Children on February 13, 1922. The child had had infantile paralysis at the age of thirteen months. It walked mainly on the toes, the heel, owing to the great shortening of the *tendo Achilles*, being raised from the ground. The foot was held in a position of abduction and eversion and all the toes were fixed in an abducted position. There was paralysis of all the dorsi-flexors of the foot and of the *tibialis anticus* and *posticus*. The *tendo Achilles* was greatly shortened, owing to the long-continued overaction of the *gastrocnemius*.

The treatment consisted in the first place in a lengthening operation of the *tendo Achilles* by the "Z" method through an open incision. The whole of the *equinus* deformity was not immediately corrected, notwithstanding the fact that the tendon had been lengthened by thirty-one millimetres. The foot was then put up in plaster of Paris. Six weeks later the plaster was removed and an arthrodesis of the astragalo-scaphoid joint was performed. At the same time the tendon of the paralysed *tibialis* had been fixed by reflecting a flap of periosteum with a thin shell of bone from the lower portion of the antero-internal surface of the tibia and suturing the tendon under it. The foot had again been put up in plaster in an over-corrected position. At the end of six weeks the *tendo Achilles* had again been lengthened and the remainder of the *equinus* corrected. Dr. Hipsley stated that if the original deformity showed any tendency to relapse he would transplant the tendon of the *peroneus longus* by inserting it into the inner surface of the internal cuneiform bone.

Perthes's Disase.

DR. F. C. ROGERS presented a child who was suffering from Perthes's disease or *osteo-chondritis deformans juvenilis*. This condition was often spoken of as quiet hip disease. It was more common in males than in females and occurred between the ages of five and ten years. The skiagram revealed that the head and neck of the femur were involved, but not the acetabulum. The changes comprised a general rarefaction and mushroom formation. There was no pain. The patients limped with a lurch toward the affected side, somewhat like the limp associated with congenital dislocation of one hip joint. All movements remained free, except those of external rotation and abduction. As a rule, the disease ran its course in from six to eighteen months. The diagnosis had to be made from tuberculous hip disease. In the differentiation the skiagraphic appearances were of great value. In Perthes's disease the patient did not yield a reaction to the von Pirquet test. There was limitation of the movement in all directions in tuberculous disease of the hip. Recovery took place with free movements.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

JAMES, JOHN ALEXANDER, M.B., 1911 (Univ. Sydney), "The Manse," Wahroonga.

THE undermentioned has been elected as a member of the Western Australian Branch of the British Medical Association:

CORR, OSWALD REFORD, M.B., B.S., 1921 (Univ. Melbourne), Fremantle Hospital.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University was held on July 3, 1922.

The degree of Master of Surgery (Ch.M.) was conferred upon DR. W. T. J. HARRIS, of Newcastle, *in absentia*.

A letter was received from the Agent-General stating that DR. JOHN MACPHERSON, C.B., M.D., F.R.C.P.E., late Commissioner in Lunacy for Scotland, who had been appointed to the Chair of Psychiatry at this University, accompanied by his wife and two daughters, was leaving England by the S.S. *Ulysses*.

A very interesting report was received from DR. CHARLES MACLAURIN, the University delegate to the Seven Hundredth Anniversary of the University of Padua.

ASSOCIATE PROFESSOR GRIFFITH TAYLOR was appointed as a representative of this University on a Committee being

formed by the Queensland Branch of the Royal Geographical Society of Australia to investigate researches in regard to the Great Barrier Reef.

On the recommendation of the Professor of Pathology it was decided to appoint DR. KEITH INGLIS as Lecturer and Chief Demonstrator, *vice* DR. BARLING (resigned).

On the recommendation of the Professor of Physiology the following were appointed Examiners in Pharmacology for the Third Degree Examinations in August next: DR. JOHN MACPHERSON and DR. INGRAM.

The following resolution was adopted:

> That an interim committee be appointed to draw up regulations for the constitution and management of an Appointments Board and to take the necessary steps for initiating the proceedings of the Board and that such committee consist of the Chancellor, the Vice-Chancellor, the Warden, Mr. Justice Ferguson, Sir Henry Braddon, and Professors Chapman, Holme, Peden, Read and Warren.

The following were appointed Examiners for the conduct of the forthcoming Final Degree Deferred Examination in Medicine:

Medicine: PROFESSOR MILLS, DR. CECIL PURSER.

Surgery: PROFESSOR SANDES, SIR HERBERT MAITLAND.

Obstetrics: DR. J. C. WINDEYER, DR. S. H. MACCULLOCH.

Gynæcology: DR. FOURNESS BARRINGTON, DR. G. ARMSTRONG.

Clinical Medicine: DR. G. E. RENNIE, DR. C. B. BLACKBURN, DR. J. MACDONALD GILL, DR. H. J. RITCHIE.

Clinical Surgery: DR. G. H. ABBOTT, DR. GORDON CRAIG, DR. C. E. CORLETTE, DR. H. S. STACY.

A recommendation of the Faculty of Medicine that provision be made for the establishment of tutorships in obstetrics was referred to the Finance Committee for report.

The recommendation of the Faculty of Science that MR. W. R. BROWNE, B.Sc., be admitted to the degree of Doctor of Science and be awarded the University Medal at graduation was adopted.

A communication was received from the Queensland Trustees, Limited, Brisbane, executors of the will and codicil of the late Louise Bancroft, stating that under the will a legacy of £1,000 had been bequeated to the University to be invested and the income to be applied in the establishment of an annual prize to be called the "Peter Bancroft Prize" for research work in medicine, the University to arrange the rules of the competition for such prize. It was decided that a letter of thanks and appreciation be sent to the executors.

Special Correspondence.

LONDON LETTER.

BY OUR SPECIAL CORRESPONDENT.

New Regulations Under the Insurance Act.

I HEAR on good authority that experience is proving that there was little foundation for the fear of those who felt that the new regulations under the *Insurance Act* would seriously impair the capital value of medical practices. Until the present year it was customary after the death of a panel doctor or his sale of his practice for his panel patients to be informed by circular of the changed circumstances and of the name of the medical man who had bought the practice from their doctor or his executors; at the same time the patients were notified that, except in the event of their making objection and taking their "panel cards" to another doctor, they would automatically be transferred to the panel list of their late doctor's successor.

The average insured person's attitude is one of inertia (not infrequently, for example, the newly insured person defers the necessary selection of a doctor until perhaps, after a year's good health or more, an acute illness reminds him of that necessity) accordingly the practical result was that in the transfer of practices under the old regulations, 99% of the panel list became safely credited to the successor. Under the new regulations the insured persons who do not after due notification select their late doctor's successor as their panel attendant, are allocated to the local panel practitioners by a committee, half of which consists of medical men. In practice it has been found in several areas that the allocation committee has invariably allocated the patient in question to the man who has bought the practice and it appears likely, therefore, that the new regulations will make little difference in the selling value of panel practices.

I believe that an increasing volume of medical and other opinion is in favour of increasing the freedom with which the insured person may change his doctor. At present the patient who desires to do this, has either, firstly, to obtain from the insurance committee a form which he must take for signature, both to the superseded doctor (possibly, the patient may fear, an errand of some delicacy) and to his successor; or, secondly, to wait until the month of May or November, during which month the delivery of his old medical card to a new doctor will lead to the transfer of the patient as from the succeeding July or January respectively.

Now in practice a panel patient rarely desires to change his doctor; when he does, it may reasonably be argued as few obstacles as possible should be placed in his way. Freedom of choice of doctor was one of the points in regard to which it was rightly claimed by doctors twelve years ago that the national health insurance system should be superior to the antecedent and vicious "club practice"; any measure which hampers his freedom of choice, provides the panel patient who is dissatisfied with his treatment, with a real grievance. A system by which an insured person could quickly and easily change his panel doctor would place such a person as regards "freedom of choice" on an equality with the non-insured person and give him a distinct advantage over the old "club patient."

Apart from this point, it is difficult to understand the reasons which have recently led a prominent spokesman of the approved societies publicly to declare that "they believe that the panel system is very bad, not worth the money it costs." It is true that the medical benefit under the *Insurance Act* is sadly incomplete—no dental, ophthalmic or nursing provision is made; no arrangements for major or even certain minor operations are included and sanatorium treatment for the tuberculous is gravely insufficient. But these are criticisms which may be justly directed against the medical benefit, not against the panel service. Hostility on the part of the certain officials of the approved societies to the panel service, though perhaps not easily explicable, is a force shortly to be reckoned with when the question of the capitation fee is again broached at the end of 1912. The fact that a portion of the present capitation fee is now being paid out of the accumulated surpluses of the approved societies is fraught with the danger that the societies should be led to regard themselves as the employers of the doctors. The truth is, of course, that the surpluses are statutory funds, to which the State, employers and employees have severally contributed and that remuneration and conditions of service are matters which primarily concern the Minister of Health and the doctors only. The approved societies have much political influence which possibly exceeds their merits; many panel practitioners believe that one unfortunate result of the societies' administration of medical benefit has been a chaotic state of registration and almost all have noted a not too efficient system of payment of benefits to the disabled insured person. If strife is brewing over the capitation fee after 1923, it cannot be doubted that the position of the profession must have been strengthened by its dignified action in submitting last year in the interests of national economy to a diminution of the annual fee. Certainly the recent trend of national economic factors has forcibly impressed the panel practitioners with the wise and far-seeing nature of the decision made by the negotiating members of the British Medical Association last year.

Public Health.

VICTORIAN BABY HEALTH CENTRE.

WE are in receipt of a letter from the Honorary Secretary of the Victorian Baby Health Centre, asking us to draw attention to the fact that there is a rule of the Baby Health Centres Association to the effect that no treatment of sick babies shall be undertaken either by the doctors attached to the Association or by its nurses. It is the practice in all such cases to refer the babies to a hospital or to send them to their own doctors. The Association will be glad to hear of any infringement of this rule.

Obituary.

JAMES FRANCIS AGNEW.

THE death is announced of Dr. James Francis Agnew, Principal Medical Officer of the Department of Repatriation. Dr. Agnew was on a visit to Scotland. His death took place in Glasgow.

HERBERT AUGUSTUS EMBLING.

WE learn that Dr. Herbert Augustus Embling died on July 8, 1922, at Brisbane. Dr. Embling has for the past twelve months been in charge of the Rosemount Military Hospital, Queensland.

JOSIAH CORLIS.

THE death is announced of Dr. Josiah Corlis, of Bangalow, New South Wales, on July 8, 1922, at the age of eighty-two years.

Medical Appointments.

DR. OSWALD COBB (B.M.A.) has been appointed Senior Resident Medical Officer at the Fremantle Public Hospital, Western Australia.

* * * *

DR. F. J. CLARK (B.M.A.) has been appointed Junior Resident Medical Officer at the Fremantle Public Hospital, Western Australia.

* * * *

DR. G. W. BARKER (B.M.A.) has been appointed District Medical Officer and Public Vaccinator at Perth, Western Australia.

* * * *

DR. R. T. PATON, C.M.G. (B.M.A.), has been appointed Emergency Director-General of Public Health, Emergency Chief Medical Officer of the Government and Emergency Inspector-General of Hospitals and Charities in the State of New South Wales.

* * * *

DR. W. G. ARMSTRONG (B.M.A.) has been appointed Director-General of Public Health, Chief Medical Officer of the Government and Inspector-General of Hospitals and Charities in the State of New South Wales.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

BENEVOLENT SOCIETY OF NEW SOUTH WALES: Honorary Ophthalmic Surgeons.

CHILDREN'S HOSPITAL, CARLTON, VICTORIA: Honorary Clinical Assistants.

WALTER AND ELIZA HALL INSTITUTE OF RESEARCH, MELBOURNE HOSPITAL: Junior Qualified Assistant.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Societies Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Hampden District Hospital, Kuridala, North Queensland Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

JULY 15.—Northern Suburbs Medical Association, New South Wales.
JULY 18.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JULY 19.—Federal Committee of the B.M.A. in Australia.
JULY 19.—Western Australian Branch, B.M.A.: Branch.
JULY 21.—Western Medical Association, Dubbo, New South Wales.
JULY 25.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
JULY 26.—Victorian Branch, B.M.A.: Council.
JULY 27.—South Australian Branch, B.M.A.: Branch.
JULY 27.—Brisbane Hospital for Sick Children: Clinical Meeting.
JULY 28.—New South Wales Branch, B.M.A.: Branch.
JULY 28.—Queensland Branch, B.M.A.: Council.
AUG. 2.—Victorian Branch, B.M.A.: Branch.
AUG. 4.—Queensland Branch, B.M.A.: Branch.
AUG. 8.—New South Wales Branch, B.M.A.: Ethics Committee.
AUG. 9.—Western Australian Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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